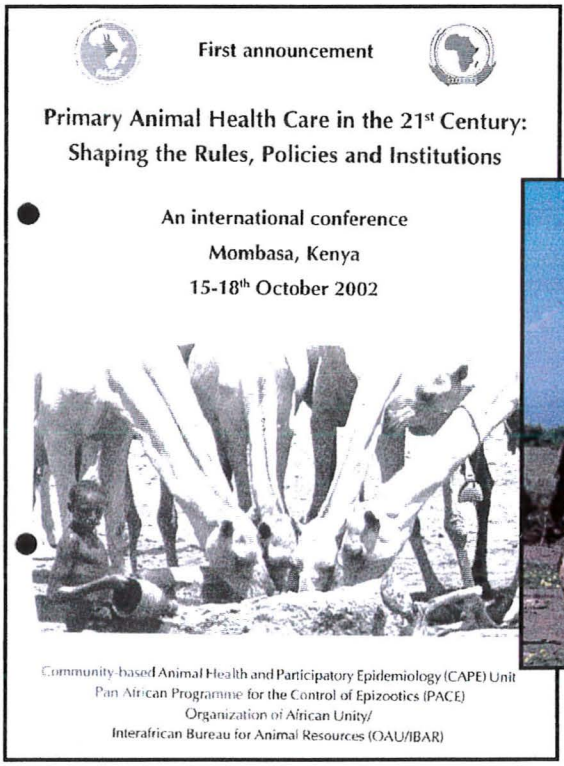
Primary Animal Health Care in the 21st Century:
Shaping the Rules, Policies and Institutions

Rapport de mission Octobre 2002

Par Pascal BONNET,

CIRAD-EMVT& ILRI



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RESUME :

Le document présente un résumé des présentations faites au cours du séminaire, et les recommandations préliminaires faites et commentées en attente des recommandations finales.
Il introduit par ailleurs une vision personnelle de certains enjeux pour la recherche au CIRAD ou dans les projets communs CIRAD & partenaires tels que celui entre CIRAD-EMVT et ILRI (PA51ADD). Ces paragraphes encadrés (points de vue) sont à destination prioritaire de **l'équipe économie** EPE (forum Damoclès) et peuvent dans une certaine mesure alimenter les réflexions au sein du groupe **EPITROP,** des équipes **modélisation** et **épidémiologie** du CIRAD-EMVT (dans le cadre de la vision stratégique de la recherche au CIRAD et de l'évolution des méthodologies de recherche action dans d'autres institutions).

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Déroulement de la mission

- Lundi 14 octobre 2002

- Départ de mission 4.30 am Addis Ababa vol Kenya Airways, arrivée Nairobi 6.30 am.
- Départ Nairobi 7.30 am et arrivée Mombasa 8.30 am.
- Prise en charge par l'Hôtel Resorts White Sands à l'aéroport, repos.

- Mardi 15 au Vendredi 18 octobre 2002

- Conférence : emploi du temps des journées détaillé par la suite.

- Monday 14th, evening

- Opening ceremony

6.00 pm: Welcome by Director AU-IBAR (Acting Director Dr Musime), official opening by Kenyan Minister of Agriculture (excusé dans un contexte d'élections au Kenya) and speeches by OIE, CTA, CAPE (Tim Leyland), OIE (Alex Schudel), CTA (Isolina Pado), FAO (PPLPF pro-poor livestock), DFID (Dil Peeling), Intervet (co-sponsor).
7.15 pm: Cocktail for all participants and invited guests
8.30 pm: Formal dinner for VIP guests.

- Tuesday 15th to Friday 18th, evening

- Working sessions and presentations.

- Samedi 19 au Dimanche 20 octobre 2002

- Rédaction et retour

Départ de mission 7.00 pm Mombasa vol Kenya Airways, arrivée Nairobi 8.30 pm.
Départ Nairobi 22.30 pm et arrivée Addis Ababa 23.55 pm.

Les journées feront référence à une réunion précédente organisée sur le sujet par CAPE-AU-IBAR dont nous rappelons les thèmes précédents ci-après :

DRAFT PROGRAMME FOR THE DFID/WORLD BANK WORKSHOP ON COMMUNITY-BASED ANIMAL HEALTH WORKERS

TAUSI HALL, AICC, MONDAY 22nd JANUARY

14.00 "Opening speech" - Director Livestock Development, Tanzania

14.10 "Overview of the progress in **restructuring the Delivery of Animal Health Services in Africa – From Bujumbura to Arusha**." - Cees de Haan, World Bank

14.50 "**Community-based Animal Health workers – Threat or Opportunity**." - Dil Peeling, LID

15.30 Refreshments break

16.00 "CAHWs in Tanzania - a case study." - John Woodford, AHSP

16.30 "The role of CAHWs in Animal Health Service Delivery in Africa - Opportunities and Challenges." - Open discussion

Tuesday 15th All day. 9.00 am - 5.30 pm

Theme One: General policy, legislation and institutional issues

Politiques générales des systèmes de santé animale en Afrique, législation et institutions régulatrices (règles)

Scene setting:

Florence Kasirye – History and status quo of animal health service delivery in Africa and why change is necessary plus evidence of positive impact of CAH.

A ce stade on introduit le débat sur l'évolution des services de santé animale, plutôt centré sur la Corne élargie de l'Afrique (*Greater Horn of Africa* selon le concept américain). La place des services vétérinaires et en particulier de certaines de ses composantes dans les organigrammes nationaux des ministères est abordée, ce qui pose d'entrée le problème de la nature des services rendus (fonctions remplies) et ❶ de leur positionnement au sein des institutions et ministères et de la chaîne de décision qui les concerne (service économique & planning s/c du ministère concerné au MoA-Agriculture chargé du développement ou service social au sein du MoH Santé humaine et Commissions & Ministères pour les plus démunis, par ex. relief Disaster Preparedness Commission DDPC en Ethiopie) ou ❷ du type d'usager (entreprise, individuel et diverses productions animales concernées) et ❸ du modèle (ou de l'idéologie) économique prédominant au sein du pays (marché, état, mixte). On y distingue le plus souvent et en fin de compte les éleveurs orientés sur le marché et organisés en filières ou les éleveurs démunis de l'agriculture de subsistance et plus ou moins organisés.

A partir du positionnement des services vétérinaires les terminologies déjà utilisées à l'origine pour traduire l'activité et le statut fonctionnel des auxiliaires d'élevage sont rappelées et spécifiées (à l'origine : Tanzanie : *Native Vet. Guards*, Ethiopie *Vaccinator*, Ouganda *Vet. scouts*).
Les caractéristiques du contexte institutionnel national (type d'état, degré de **décentralisation** des services et de la chaîne de décision, degré de **privatisation** du système de soins vétérinaire, et degré et de la dynamique des **réformes** au sein des services vétérinaires) sont rappelées en mentionnant en quoi cela a-t-il pu influencer la performance de certains systèmes de services en santé vétérinaire (dégradation v/s amélioration), en insistant en particulier sur les processus de décentralisation et de privatisation.
A la suite des faillites du marché et des gouvernements dans de nombreux pays au moment de l'application des plans d'ajustement structurels, les ONG se positionnent et provoquent une montée en puissance des approches communautaires par la formation, l'équipement et le suivi de para-vétérinaires (on reprendra ce terme) en particulier dans les zones ASAL's marginalisées et au contraire des zones de production animale à fort potentiel (périurbain grâce au marché, ou zones à fortes ressources naturelles). On note aussi la multiplication des **colporteurs** de médicaments plus ou moins associée à cet élan de formation des auxiliaires.

On a donc la révélation d'un problème **d'accessibilité géographique** (spatiale) et **d'accessibilité sociale** et culturelle (connaissances sur les maladies et les services, pouvoir d'achat, barrières culturelles..) vis-à-vis des services, paradigme qui est connu de la littérature pour expliquer le recours effectif aux services[1,2].

En conclusion la décentralisation a généralement permis de mieux prendre en compte les **besoins** des populations locales, mais elle a généralement cassé la **chaîne d'information** propice aux réactions organisées et à la **planification** sanitaire. La notion de contrat est indirectement présentée puisque la majorité des ONG emploient des vétérinaires (experts) qui contractent des auxiliaires sous couvert du contrat moral des communautés

John Thompson (IIED, UK) – Natural resources global overview; process of policy change.

L'auteur discute le moyen de mieux apprécier les besoins des populations et pour ce faire reprend le concept de **PRA** (*Participatory Rural Appraisal*) développé pour la première fois au Kenya en explicitant la naissance de ces méthodes et leur développement ultérieur. A partir d'une analyse académique frustrante (et coûteuse) des méthodes alternatives de **diagnostic** et de **résolution** (négociation) de problèmes se sont développées à partir des approches holistiques des analyses systèmes, donnant naissance aux techniques participatives. Ce processus s'est réalisé à partir d'une **méta analyse** des méthodes dans la littérature en particulier en anthropologie sociale et dans l'approche système et le diagnostic des zones agro-écologiques. La PRA a évolué vers **l'évaluation participative** des programmes mis en place en réponse aux besoins exprimés, et laisse libre cours à des innovations méthodologiques et à une approche multidisciplinaire plus vivaces que dans les méthodes académiques.

L'application de la PRA à l'IPM *Integrated Pest Management* est rappelée ainsi que les avancées consécutives en terme d'éducation des éleveurs et paysans et de leur participation au processus de développement (concept des *Farmer Field School*). Ce concept est repris cette année au sein du projet animé par Bruno Minjauw sur financement DFID à l'ILRI (réunions fréquentes de petits groupes d'éleveurs et actions communes). A partir des *success stories* qui illustrèrent cette démarche le problème d'aujourd'hui reste alors d'étendre ces méthodes de négociation et de participation communautaire à un ensemble d'acteurs sensiblement différents et devant mener à des réformes au niveau national ou régional (décideurs et *policy makers*). Les nouveaux enjeux de la **lutte contre la pauvreté** renforcent la pertinence de la PRA dans la mesure où elle peut permettre de mieux accomplir les nouvelles stratégies globales des états en ce sens, supportés par la stratégie globale de la Banque mondiale et d'autres institutions internationales (FAO) qui ont pris le relais de cette démarche.
Les pays ont donc développé diverses orientations stratégiques sous la forme de PRSP's (*Poverty Reduction Papers*) et NSSD's (*National Sustainable Sevelopment*) au sein desquelles les approches participatives doivent jouer un rôle majeur.

Afin de développer ces méthodes dans les forums adaptés et plus spécialisés et afin de remplir la fonction de ces nouvelles stratégies à lutter contre la pauvreté en particulier dans les pays considérés comme très endettés (HIPC *Heavily Indebted Poor Country initiative*), il est nécessaire de mieux coller au terrain. Il a été alors utile de recourir à des outils de planification stratégique qui fassent appel aux décisions et consensus locaux, donnant naissance à des cadres logiques de politique de développement local issus de la base : les PRSP's (*Poverty Reduction*) et NSSD's (*National Sustainable Development*) ; la PRA servant alors d'outil de diagnostic et de négociation (elle est comprise au sens large : toute méthode participative telle que la méthode alternative PACT développée au CIRAD Ecopol par exemple).
Les PRSP's *(Poverty Reduction Strategy Papers)* sont repris par la banque mondiale dans son souci de lutter contre la pauvreté. La méthode et les concepts PRA sont donc passés du monde de la négociation locale à une exploitation par et pour les décisionnaires (*policy*) et dans une vision globale des problèmes. Les derniers programmes de la Banque par exemple en Éthiopie pour promouvoir les zones pastorales sont à ce sujet significativement orientés vers l'usage des méthodes proposées pour atteindre les communautés et provoquer un meilleur dialogue entre état et communautés (Pastoral Community Development Project & Project Implementation Manual Preparation & Terms of Reference 2002).

Divers documents de l'IIED rappellent les fondamentaux sur ces sujets ainsi que diverses expériences pratiques accumulées (Séries LPA sur le site IIED) et seront bientôt intégralement disponibles sous CD. J'ai d'ailleurs participé à un document qui doit sortir d'ici la fin de l'année sur la place des CAHW's publié par l'IIED sur financement DFID[1].

Dr A P Rutabanzibwa (Tanzania) : Veterinary Legal Reform in Tanzania.

Le cas de la Tanzanie (où 90 % des éleveurs sont des pasteurs) est rappelé dans la perspective d'amorcer le débat sur le rôle des CAHW's dans divers pays et le niveau de légalisation de ces paravets. A ce titre les paravets sont enregistrés dans une liste officielle, sinon ils sont considérés comme des éleveurs. Les fonctions des services vétérinaires et la répartition des rôles de l'état (régulation) ou du service privé (cliniques) et des éleveurs (responsabilité en santé animale) sont rappelées. L'obstacle de la propension à payer des populations marginalisées est posé mais est fortement contesté et débattu dans les questions. J'ai rappelé à cette occasion que la réponse classique au manque de moyens de financements individuels est le financement collectif en santé en particulier par les systèmes de mutualisation du risque (HMO en anglais *Health Maintenance Organisations*) ou de collectivisation des moyens (GDS en France, coopératives d'éleveurs en RCA).

Raphael Coly (Sénégal) présenté par **Dr Cheikh Ly (Dakar Ecole vétérinaire Département de sciences économiques et économie rurale, président de l'association professionnelle des vétérinaires sénégalais) :** The situation with paravets in Senegal.

L'auteur rappelle des notions déjà soutenues mais appliquées au cas de l'Afrique de l'ouest. La place des CAHW's a évolué depuis la fonction de personnel vaccinateur des grandes campagnes de vaccinations, en passant par leur rôle au sein de projets de développement à l'échelle nationale (PDSOE), et leur utilisation par des sociétés privées d'exploitation (cotonnières pour la plupart au sein de projets intégrés), et finissant par leur reconnaissance dans des structures locales associatives (VSF, mission, associations territoriales).

Le débat sur la terminologie est donc repris à partir d'un rappel du rôle de divers techniciens et auxiliaires au Sénégal, dans les contextes de l'état colonial, du PDSOE, des entreprises cotonnières et selon deux échelles nationales et locales (ONG), puis au travers des transformations induites par les PAS en Afrique[2]. La **position du consommateur** qui peut demander des services sanitaires de qualité et donc poser le problème de la responsabilité civile du système de soin et de surveillance sanitaire est rappelée dans ce contexte (elle ne sera pratiquement jamais plus discutée dans les exposés alors qu'elle est une illustration importante des changements de fonction des services vétérinaires dans le monde ces dernières années). La position prise montre que dans le contexte sénégalais, les CAHW's ont eu et ont encore une fonction de transition ou une fonction locale, mais l'appellation de mal nécessaire par l'auteur à leur propos et traduite par "*necessary devil ou evil*" est très mal ressentie par le public anglo-saxon.

Souaré (Guinée) : The situation with paravets in Guinée

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[1] **Bonnet P.** 2001 chapter notes in " *CBAHW's Community based Animal Health Workers, Threats or Opportunity: policy options and historical background* " in IIED participatory learning and action notes PLA Notes Ed. Dil Peeling. International Institute for Environment and Development IIED London UK. under press financed by DFID 2002.

[2] La notion de paravet est considérée comme une notion associée à une formation diplômante depuis la réunion d'Arusha en 2001, elle est conçue par les francophones comme une notion différente des CAHW's agents zoo sanitaires communautaires, et des auxiliaires d'élevage non diplômés.

L'auteur insiste sur le tripode vertueux de la santé animale de base (Organisation de producteurs, vétos privés, et état régulateur), base nécessaire avant que toute autre composante additionnelle s'y rajoute (auxiliaire). On a là l'illustration d'un séquence particulière et graduelle du développement qui passe avant tout par ces trois composantes. L'exemple amplifie le rôle donné aux associations d'éleveurs et autres OP en particulier au travers des multiples fédérations aux diverses échelles du pays, thème qui sera par ailleurs peu repris au cours de la conférence et devra être rappelé à maintes reprises par les intervenants de culture francophone. Si les OP sont reconnues en tant que telles (par ex. réduction des coûts de transaction pour la commercialisation du bétail), leur rôle dans la construction d'un système de santé animale primaire (et au-delà en santé sélective) ne semble pas réellement évident ni attractif chez nos collègues d'Afrique de l'Est (bien que souvent ils y fassent allusion d'une façon ou d'une autre), peut-être à cause d'une différence de nature du développement agricole entre ces grandes zones d'histoire différente. Ce peut être aussi du fait du caractère des OP d'Afrique de l'Ouest très orientées vers la filière et la commercialisation des produits animaux ce qui implique aussi des actions d'auxiliaires d'élevage en santé animale (vision économique de la filière orientée vers le marché), ce qui est une situation contrastée en comparaison de la vision quasi caritative que devrait avoir selon certains le rôle des CAHW's au sein des communautés locales et dans l'objectif de réduire la pauvreté. C'est un peu contradictoire avec l'idée que la lutte contre la pauvreté passerait par la création de marchés pour les pauvres. Par ailleurs l'harmonisation des curriculum de formation des auxiliaires et autres CAHW's bien réalisé en Guinée semble être un progrès.

D'une manière plus théorique et selon un regard de chercheur, la différence fondamentale qui s'inscrit très bien dans la présentation du Dr. Souaré est que la vision de certains est tournée vers le **système de soins** ce qui exclut la réflexion sur la place des éleveurs (considérés comme usagers d'un système social, cette réflexion semblant centrée sur la place de l'état et des offreurs), alors que la vision francophone est plus ancrée dans l'approche socio-économique du **système de santé animale** ce qui inclut les éleveurs en tant que force d'action active au niveau économique et politique et leur donne un rôle au sein des processus de décision, leur position étant plus une position de client dans un système économique global. Cette vision holistique des **systèmes de santé** a été souvent rappelée car elle est fondamentale pour l'analyse et la décision sanitaire, elle a été imparfaitement comprise au cours du colloque jusqu'au moment des recommandations finales au moment d'inclure la place des éleveurs parmi les acteurs du système de soins ou de santé où il est bien apparu que les affaires vétérinaires étaient aussi affaires d'éleveurs (client ou usager et acteur) [3 4 5 6 7].

En bilan de son intervention, l'auteur rapporte que là où il existe peu d'agents communautaires on a une surenchère du prix du médicament, là où ils sont présents seuls (pas d'OP) on a une forme de concurrence mais un fort abandon des opérateurs CAHW's (sortie du marché officiel) et des dérapages fréquents sur la légalité du marché médicaments (entrée sur marché parallèle illégal), et là où des OP existent les auxiliaires agents communautaires et paravets sont parties intégrantes du **sous-système de santé local** constitué des OP (éleveurs qui les paient), des vétérinaires associés aux OP et de l'état représenté (sous couvert de mandat sanitaire délivré par l'état qui est donc indirectement représenté, en vertu de son rôle à réguler du fait de l'existence d'externalités fréquentes en santé), et des divers auxiliaires paravets et agents de santé communautaire issus des OP.

Point de vue personnel

Si nous nous situons sur le plan des maladies contagieuses ou des maladies vectorielles à fortes externalités (qui justifient d'autant plus l'intervention de l'état selon la théorie économique), cela semble donc bien illustrer qu'un système de santé même local doive reposer sur la présence des trois composantes fondamentales du système de santé telles que déjà décrites (il n'y aurait pas d'effet d'échelle sur la cohérence de ce concept que ce soit envisagé au niveau national ou local, le triangle d'or ❶ éleveurs , ❷ services de soins et ❸ état ou son mandataire devant être représenté et surtout équilibré). Les faillites du système telles qu'observées en certains lieux sous couvert de contextes très marginalisés étant en partie associées à **l'incomplétude du système** de santé local (pas d'état, pas de vétos privés ni salariés d'une OP, pas d'associations d'éleveurs) alors que même si la zone est très marginalisée mais en présence d'agents d'intermédiation (en général ONG sous couvert de bénévolat et de fonds publics qui suppléent à l'état et au privé et associent les éleveurs en tant que bénéficiaires du projet), la coordination socio-économique au sein du système est complète et équilibrée et la fonction de représentation de l'ONG comble tous les pôles manquants du système de santé et rend l'institution viable. C'est vrai sous couvert que la règle de **financement des services** soit la même partout sur un territoire donné, pour éviter les effets de concurrence déloyale qui sont pourtant légion en zones pastorales, quand on observe une concurrence entre ONG et organisations internationales en particulier sur les caractéristiques locales de la distribution du médicament vétérinaire, par ex. gratuité versus participation des communautés, développement versus urgence.
La légalité des auxiliaires et agents de santé communautaire est en fin de compte posée par la légalité des OP et des ONG. La survie d'un système étant par ailleurs garantie par l'existence des trois pôles principaux du système de santé, et par le degré d'harmonisation des règles au sein du sous-système de santé étudié (car il peut envisager des règles différentes au sein du système de santé national du fait de l'existence de contraintes régionales sur des territoires dont les caractéristiques diffèrent, par ex. discrimination négative entre régions : support aux zones pauvres via des subventions de l'état, et taxations des transactions de santé sur les zones de production riches en vue d'un effet redistributif).

Video presentation: *'The Business of Paradigms'* - opportunities offered by adopting new paradigms.

Il s'agit d'une vidéo instructive bien que caricaturale d'origine américaine sur la difficulté de faire accepter les changements en général dans la vie de l'entreprise et la société et les inconvénients de cette paralysie due aux **paradigmes**, filtres sociaux normatifs qu'il faudrait dépasser pour ne pas rater les révolutions technologiques et institutionnelles à venir. Très orientée sur le problème de l'adoption des innovations technologiques et les blocages au changement au sein des entreprises (ex. Kodak qui rate la révolution technologique du développement instantané proposé par Polaroïd.), plutôt que sur les innovations organisationnelles et la sociologie du changement, cette vidéo démontre cependant le rôle moteur ou non des nouvelles idées. Utile dans le sens où elle introduit la place des paradigmes et donc des théories filtres d'une réalité connue mais perçue artificiellement à travers un filtre normatif conventionnel et de l'habitude qui paralysent la dynamique d'innovation (ex. voir passer un as de pique de couleur rouge mais l'accepter car le filtre conventionnel du jeu de cartes nous empêche de le voir rouge). Cette vidéo intentionnellement postée en première journée cherche à nous faire prendre conscience du degré de nos résistances internes au changement. Pour ce qui est des paradigmes, l'économie n'en manque pas et en particulier en santé et en santé animale, entre les partisans du tout libéral et du tout état, toutes les positions retranchées intermédiaires continuent d'exister et le colloque en a été un exemple.

Point de vue personnel

Ce problème, même si à notre avis posé de manière caricaturale, est réel dans nos perceptions de chercheurs sur le système de santé animale. Par rapport au problème posé je considère que deux contre vérités continuent de traîner dans les forums :
❶ une première est que les pauvres ne peuvent ou ne veulent pas payer les services et que donc **l'accessibilité financière** est faible. Le développement du micro crédit, (ex.: la Green Bank en Inde) montre bien leur efficacité au contraire et ce à haut taux d'intérêt, le problème avant l'organisation de services de santé étant alors de mettre en place de tels systèmes de services annexes en zones marginales, systèmes qui pourraient entrer en concurrence avec le système de capitalisation particulier des pasteurs sur le bétail.
Et ❷ le fait que **l'accessibilité spatiale** est une contrainte majeure : on montre souvent que les pasteurs de par leur caractère mobile sont prêts à couvrir de très grandes distances pour un service donné si la preuve de la qualité du service est avérée, ce qui constitue le point fondamental qui justifie le coût de transaction consacré à la démarche d'utilisation d'un service, l'essentiel des barrières étant surtout constituées par le manque de confiance.
Ce serait alors par l'amélioration de **l'accessibilité sociale et culturelle** que l'on devrait d'abord passer (du fait que les barrières ethniques sautent et que la confiance est naturelle entre l'éleveur et l'agent de santé communautaire).

Group exercise: what are the five most important features of an animal health service in Africa?

En analysant les réponses à un petit questionnaire distribué en début de session et ceci par catégorie de représentants à ces sessions (corporations et types d'institutions), les organisateurs tentent de lister et d'organiser (hiérarchiser) les facteurs du changement qui seraient les mieux reconnus par les acteurs de cette conférence. Le caractère de représentativité est celui de la composition des invités à la réunion.

Video: *'The voice of poor livestock keepers'* - interviews with poor livestock keepers explaining what animal health services they need.

La vidéo présentée introduit la voix de la demande sociale (les éleveurs) vers un changement demandé au bénéfice de soins de santé communautaire. Des problèmes de traduction lors d'interview d'éleveurs de la zone francophone (Afrique de l'Ouest) ont été relevés par certains participants de cette zone qui parlent la langue. Certains ont mené à des contre sens (l'éleveur déclare qu'il veut de vrais professionnels vétérinaires et pas des paravets dans sa langue native, quand la traduction anglaise dit qu'il déclare avoir besoin d'agents de santé vétérinaire en général.). On ne prendra pas partie.

Theme One: General policy, legislation and institutional issues

- Processes for policy reform: top-down, bottom-up and others
- Research and information needs for policy change
- Changing the law: ensuring flexibility in the new rules
- Regional and harmonised approaches
- Changing policies versus changing institutions
- How to measure the impact of new policies and rules
- Case studies

Key note:
Case studies:

Group discussion topics:

- Policy issues specific to the poor
- Developing a pragmatic vision: what are the options other than CAH?
- Pros and cons of CAH

Wednesday 16th All day 9.00am - 5.30pm

Theme Two: Sustainability and privatisation

- State-run systems, revolving funds and privatisation
- Experiences from non governmental organisations
- The private sector - private vets linked to community-based animal health worker networks
- Other roles for community-based animal health workers – extension, human health and other options
- Policy harmonisation including in relief situations
- Reporting systems
- Case studies

Keynote:
David Leonard (Univ. of California at Berkley), Cheikh Ly (Senegal - presenter in French) and Pam Woods (Zimbabwe): Community-based animal health workers and the veterinary profession in the context of African privatization

Le professeur en économie du développement D. Leonard attaché à l'université de Berkeley (California USA, Économie du développement) propose en association avec les autres auteurs une approche du changement des systèmes de santé en Afrique par le biais de l'utilisation des paradigmes de la nouvelle économie institutionnelle NIE.
Cheikh Ly qui présente le papier, introduit une nomenclature de la terminologie : agent communautaire de santé animale **ACSA = CAHW's, near professional = quasi professionnel** avec plus d'une année de formation tels que les Ingénieurs des Travaux d'élevage au Sénégal, responsable d'élevage au Kenya, à différencier des techniciens ayant moins d'un an de formation, tels que assistants de santé animale au Kenya ou agents techniques d'élevage au Sénégal, et la série des auxiliaires ACSA qui ne touchent pas de salaires et scouts vétérinaires salariés du service public. Il retrace dans les contextes de systèmes et filières de production africains (quatre classes : pasteurs, traditionnel sédentaire, commercial mixte, industriel intensif) les choix faits lors de la privatisation et de la décentralisation au travers des méthodes de recouvrement des coûts qui ont été privilégiées. Il remet en cause l'hypothèse d'une discrimination sur la demande en service et la différenciation des pauvres sur la volonté de payer les services (*willingness to pay*) comparés aux éleveurs aisés, ces deux groupes n'étant pas à dissocier dans une approche globale (le caractère de la pauvreté étant plus alors un problème de rapport au pouvoir). Cela va donc au contraire de certaines idées reçues sur la nécessité d'une discrimination négative entre les deux groupes d'éleveurs (donner plus aux pauvres) qui nécessite en fait de déterminer les **niveaux seuils de pauvreté** plus que de parler de pauvreté.
L'approche par le caractère public ou privé des soins curatifs est revue et discutée (repris dans les groupes de travail). Elle impose la connaissance de certaines caractéristiques propres au domaine de la santé en général (asymétrie d'information, ...) et en santé animale en particulier (faible valeur de l'animal) et prône le rôle substantiel joué par certains coûts de transaction dans les choix des consommateurs. Ce serait le cas lors des décisions arbitrant le choix d'un vétérinaire privé versus un auxiliaire d'élevage face à un problème de santé donné (caractère de compétitivité, prix du service très accusé et en général au bénéfice de l'ACSA, et compétitivité sur d'autres déterminants tels que la qualité beaucoup plus difficile à appréhender par les parties). Les soins curatifs semblent défavoriser les experts en santé au profit des services délivrés à faible coût (auxiliaires).

L'auteur privilégie un travail futur via une meilleure implication des parties sur les stratégies de **prévention** (et donc le retour de l'état) plutôt que sur le curatif. Donc l'effort devrait porter sur des contrats entre parties qui soient conformes à un objectif partagé basé sur la prévention des maladies contagieuses et si possible avec un avantage économique à cette dernière stratégie (vision coût efficacité).
A ce titre et en vertu du comportement attendu des éleveurs les métiers à risque dans le secteur de l'offre de santé (c'est-à-dire les plus susceptibles de disparaître) sont désignés comme les quasi-vétérinaires (near professional) menacés par les ACSA et les vétérinaires privés alors que cet échelon intermédiaire devrait être renforcé. Les démarches à privilégier seraient aussi celles qui provoquent le renforcement et la création de liens entre acteurs du système de santé (OP de vétérinaires, associations) d'une manière contractuelle. D'une certaine façon l'auteur prend la position d'un défenseur de l'économie de la production animale, tandis que l'approche des CAHW's par d'autres intervenants part plutôt des politiques pro-poor ce qui est plus proche de l'économie sociale.

Par ailleurs l'équipe de D. Leonard se lance dans une étude des politiques sanitaires et des déterminants politiques du changement dans les services de santé animale qui sera basée sur une étude comparative entre 5 pays (**Sénégal, Éthiopie, Vietnam, Bolivie, Kenya**), un peu dans la même démarche que l'étude indienne Banque mondiale de l'an dernier[9]. A ce niveau on peut regretter le retard et le peu de lisibilité actuelle du projet MAE français sur l'étude comparative entre systèmes de santé animale en Afrique proposée depuis quelque temps mais à court de dynamique. L'existence d'un discours unique sur ce thème est toujours un risque pour l'arbitrage raisonné en particulier dans la perspective d'un arbitrage par l'OIE et l'OMC sur les qualités requises d'un système de santé animale dans le cadre de l'évaluation des risques sanitaires lors des transactions commerciales entre pays membres sur des produits animaux. La place des CAHW's dans le système de santé est par ailleurs au cœur du débat pour la reconnaissance par la communauté internationale du système de santé de certains pays quand les composantes de santé communautaire y sont importantes et donc au cœur de la caractérisation de la compétitivité de l'élevage dans ces pays.

La valeur de la prévention :
C'est un thème en particulier qui nous semble très intéressant à reprendre quand on parle de la valeur économique de la prévention en santé animale versus la valeur du traitement curatif. On considère en général en économie de la santé que la prévention est supérieure au traitement si lors d'une évaluation ex-ante on a l'équation suivante : si le coût de la prévention P est comparé au coût du traitement curatif C, ce dans un contexte d'incidence i de la maladie et d'une population à risque n, on privilégiera la prévention si on est dans le rapport $nP <= iC$ ou $P < (i/n)C$ [10], cette notion étant à modérer par la notion de population à risque (groupes populationnels plus à risque où la prévention y est plus bénéfique du fait d'une incidence supérieure du phénomène morbide). Cette notion implique un raisonnement implicite de type **coût efficacité** (coût par unité de bénéfice attendu) qui n'est pas évidente pour un individu isolé devant effectuer un choix de service devant un premier et unique cas attendu de maladie (avantage au traitement en général) mais qui devient plus évident si on s'attend à des cas nombreux de morbidité au sein d'un même élevage (point de vue unique d'un éleveur) ou au sein d'une communauté d'éleveurs (par exemple du fait du caractère contagieux et de l'existence d'externalités au sein de grands troupeaux). On a dans ce cas un avantage à la prévention quand le coût total de l'intervention augmente selon la loi des rendements décroissants entre les traitements et prévention : traitement avantageux au début puis avantage à la prévention au-delà d'un certain seuil.
Le point de vue individuel privilégié dans certaines approches de ce séminaire sur la santé primaire PAHC est donc trop souvent conforme à la vision économique classique (individualisme méthodologique, homo-aeconomicus et homme rationnel, [Mouchot C., 1996 #13]), en opposition à la vision collective de la lutte contre les maladies qui privilégie une vision sociale du phénomène morbide et sa prise en charge par la communauté, éventuellement grâce à un relais et sous couvert de l'existence de contrats (homo-contractus). C'est aussi le reflet d'une opposition classique en santé humaine entre santé communautaire développée au Canada (ce qui implique une certaine idée de l'écologie de la santé et l'approche de la lutte par les facteurs de risque) versus la santé privée plus développée aux USA.

Points de vue et horizons pour l'arbitrages en systèmes de soins à privilégier, quels objectifs prioritaires pour le système de santé :
La plupart des débats de ce colloque portent plus sur la fourniture de traitements curatifs à court terme et prennent le **point de vue individuel** de l'éleveur moyen. Sous prétexte d'aider un individu pauvre isolé, on s'écarte du groupe à risque, et on a une vision caritative de l'intervention ce qui marginalise le débat et élude la question d'apporter des solutions collectives préventives sur le moyen terme (vaccins etc.) avec toutes les difficultés supplémentaires que cela peut induire (ex. maintien de la chaîne du froid pour la PPCB, en attente de pouvoir généraliser des vaccins thermotolérants comme pour l'anthrax , le charbon, la peste bovine). L'approche de principe choisie dans les débats va tenter de comparer des stratégies opposées (curatif versus préventif) mais sans respect de la multiplicité des points de vue et des horizons temporels qui peuvent être utilisés en pareil exercice comme dans toute évaluation économique effectuée de manière académique d'ailleurs. Dans la mesure où les phénomènes morbides sont à forte externalités (contagiosité et grands effectifs de troupeaux, maladies vectorielles) et influencent fortement les contextes qu'on étudie en Afrique on devrait plus se reposer la question de la prévention et de la promotion de la santé du point de vue de la collectivité et sur le moyen terme alors que c'est en général la réponse curative à court terme et selon le point de vue d'un éleveur individuel qui est discutée et l'objet de la plupart des enjeux actuels sous prétexte de lutte contre l'exclusion. C'est aussi le cas dans ce colloque. Si on peut comprendre qu'un éleveur laissé seul sans système de santé digne de ce nom puisse arbitrer selon son propre point de vue c'est bien le rôle de la politique et de la **planification sanitaire** que de pallier à ces excès naturels, de prendre le point de vue de la collectivité et d'orienter la place des ACSA CAHW's vers cette fonction stratégique.

Case studies:
Yacob Akilu (Tufts/Kenya): Policy in relation to relief situations

L'auteur aborde un problème déjà reconnu dans de nombreux domaines (*Food Aid*, versus développement) : l'impact des crises et des soutiens palliatifs temporaires à faible coût ou gratuits sur la durabilité des systèmes de santé en développement. Il présente des chiffres sur les marges de distribution des médicaments au Sud Soudan, marges nécessaires à la survie du système de soins, chiffres qui sont cependant critiqués par les acteurs de ces sites eux-mêmes. Il s'agit cependant et à juste titre de rappeler que dans le cadre d'une stratégie de développement sur le long terme tout événement d'urgence et sa solution rapide interventionniste en incohérence avec des politiques de fond, risque de briser la séquence de développement mise en place à fort coût. C'est malheureusement souvent le cas et c'est soutenu par les mêmes opérateurs qui soutiennent le développement[3].

Stuart Hargreaves (Zimbabwe): The Zimbabwe experience
L'auteur aborde les séquences qui ont mené à la réforme du système de santé animale au Zimbabwe (*cost recovery, core function analysis*, restructuration et réorganisation, incitations, négociations, vision et consensus commun de l'intérêt général), attachant une importance primordiale à la concertation entre acteurs et à l'exercice stratégique (revue des fonctions) mené par étapes graduelles ce qui est conforme à la théorie et la pratique des *success story* dans les processus de privatisation des services étudiés[11]. Il s'agit d'un brillante démonstration.

FARM Africa (Kenya): NGO experience of private vets and CAH working together

L'auteur tente un essai de validation du caractère coût bénéfique d'un système de soin mis en place au Kenya dans le cadre d'un projet de développement sur la chèvre laitière. C'est une classique analyse financière de projet ex post de type ici-ailleurs (et non avant-après) ce qui n'apporte pas grand chose car un service rentable pourrait aussi être inéquitable s'il sert seulement les éleveurs les plus riches du groupe. Il tombe par ailleurs dans quelques travers méthodologiques de l'utilisation d'indicateurs financiers peu pertinents pour la question sociale posée dans cette conférence (accompagnement pro-poor par les CAHW's). La présentation a le mérite de poser le problème du recouvrement des coûts et des multiples façons de le réaliser dans un système de financement de la santé animale ou en santé humaine.

Discussion topics:

- Respective roles of government, veterinary professions, private sector and civil society in stimulating an enabling environment and to correct market failures
- Specific roles of farmers' associations, NGOs, veterinary and paraveterinary 'unions'. A check-list of animal health functions will be supplied.
- How to improve regulatory mechanisms.
- Steps needed to increase capacity of veterinary profession to play an effective role in the CAH approach.
- Stimulating and sustaining the private sector, including guidelines for relief situations.

La session de groupe est ponctuée par l'introduction de la notion de **biens publics ou privés** (vision dichotomique qui pose autant de problèmes qu'elle n'en résout selon nous) en fonction de l'étude de deux caractères des biens ou services (*excludability = facilité qu'il y a à exclure un tiers de*

[3] A titre d'illustration en Ethiopie la FAO a soutenu cet été une intervention d'urgence et la délivrance de médicaments vétérinaires d'urgence gratuits dans le contexte du risque de famine et de l'état de sécheresse, dans le cadre d'un projet. Afar ACF MAE en Ethiopie projet pourtant basé sur le co-paiement des médicaments depuis 2 ans, ce qui a ruiné pour quelques temps l'intervention sur le long terme, et cette approche a été relayée et mise en place par l'ONG elle-même qui était prise à son propre jeu de recherche de financements.

l'usage d'un bien en ayant recours à des barrages, des protections physiques ou légales (exclusion à des coûts variés, par exemple une barrière autour d'un champ défendant l'accès à des animaux), and rivalry = rivalité faible ou forte, c'est-à-dire le caractère soustractif de l'usage d'un bien par un individu vis-à-vis d'un tiers, ainsi un bien serait totalement ou partiellement soustrait à l'usage d'un tiers Y par sa consommation par un individu X, quand il est entièrement consommé et donc détruit au sens de la consommation finale et devient non disponible pour un autre usager, ou bien au contraire son utilisation et sa consommation ne provoque aucune soustraction vis-à-vis d'un tiers potentiellement consommateur de ce bien (utilisateur par exemple d'une route) ce qui permet de classer tous les services et biens et de statuer sur qui devrait les délivrer[4]. Cette approche avait déjà été présentée à l'ISVEE en 2000 à Breckenridge dans le discours introductif de Brian Perry sur les réformes de biens et services de santé.

La combinaison des caractères (attributs) des biens selon ces deux caractères et à deux niveaux (soustractif versus non soustractif, exclusion coûteuse ou exclusion peu coûteuse) permet de générer le tableau théorique suivant[12].

	Consommation soustractive	***Consommation non soustractive***
Exclusion peu coûteuse	**Bien privé (pain)** ***Private Good***	**Bien à péage (*Toll good*), câble TV**
Exclusion coûteuse	**Ressource commune *Common Pool resource* (système irrigation)**	**Bien public (défense nationale)** ***Public Good***

Comment se situent la santé[5] et les technologies de santé[6] par rapport à cette grille : elle a une situation complexe en fonction du type de pathologie (degré d'externalité) et de réponse envisageable en fonction du point de vue choisi (affecte le coût), et de la définition même du bien (état de santé, ou bien technologique) et du contexte du système de santé (qui paye quoi ?, prix et étendue des technologies).

La conclusion à cette journée est qu'il existe un vrai travail méthodologique et théorique à mener sur des méthodes économiques d'évaluation d'impact des politiques de santé animale pro-poor ou sur l'étude des comportements d'utilisation chez les pauvres (versus les autres). On notera en particulier pour ce qui nous concerne plus directement qu'à propos des méthodes d'évaluation des programmes de santé il peut être intéressant de substituer des **ACU (coût utilité) à des ACB classiques en agro-économie**, ou dans le cadre d'ACB de substituer le calcul des bénéfices attendus en général calculés sur les valeurs du marché des productions animales, par des évaluations des bénéfices attendus par les individus eux-mêmes (volonté à payer l'avantage acquis ou attendu) qui sont des méthodes classiques en santé humaine. Cela supposerait de travailler en santé animale sur les méthodes de *willingness to pay* qui sont cependant très critiquées en santé humaine. La notion **d'utilité** utilisée en pondérant certains bénéfices et coûts en fonction des **préférences** des individus permettrait cependant de répondre à certains travers dans le cadre d'une approche sociale des évaluations, plutôt qu'à valoriser les cours du marché[7].

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[4] En effet si on considère cette classification le traitement curatif d'un animal contagieux est à classer parmi les biens privés alors que le caractère de la maladie elle même porte à penser qu'elle possède un fort rapport d'externalité négative qui devrait la faire traiter par l'état et la collectivité (ex: CBPP), le caractère complexe des problèmes de santé ne nous permet pas de rallier cette présentation simplificatrice des choix à faire, malgré son intérêt théorique évident.

[5] Et la santé animale en tant qu'état de santé, une ressource écologique, un capital pour l'activité économique et sociale selon la théorie du capital humain fréquemment utilisée en santé humaine, et qui peut être transposable sous certaines conditions en santé animale, quand on discute la réduction de la pauvreté comme un objectif global, ce qui inclut la réduction des risques sur les actifs que représentent les animaux d'élevage.

[6] Produits, biens classiques.

[7] Il existe aussi d'autres méthodes de correction des valeurs quand le marché n'est pas adéquat.

Thursday 17th: **Morning: 8.00 am - 1.00 pm. Optional visits/activities interest: Tour of Mombasa and Fort Jesus; Bamburi Nature Trial; Glass-bottom boat/snorkelling**

Afternoon: 2.00 pm - 5.30 pm. Theme Three: International issues

Theme Three: International issues

- Linking community-based animal health workers to national epidemiology units
- Position of OIE in relation CAH/surveillance
- Movement controls and needs of pastoralist
- Decentralised approaches and surveillance of epizootic diseases
- Participatory methodologies for disease surveillance
- Training needs and testing community-based surveillance systems
- Case studies

Keynote:
Jeffrey C. Mariner (Tufts, USA- presenter), Andy Catley and Cristobal Zepeda (US Dept. of Agriculture: The role of community-based programmes and participatory epidemiology in disease surveillance and international trade

La session commence par une présentation de l'épidémiologie participative qui traite de l'information qualitative et semi-quantitative qui est récoltée lors des interviews auprès des communautés selon la technique de la PRA (et ses dérivés MARP etc.) et selon l'auteur dans le sens de "*intelligence*" (appliquée au renseignement militaire = pas de formalisme par questionnaire).
Un colloque tenu à Addis Ababa Ethiopie a d'ailleurs porté exclusivement sur ces sujets et les actes de cette conférence ont été largement distribués ici. Un document résumant ces approches (Actes du colloque) est disponible à Addis Ababa et en annexe à ce rapport pour consultation et classement à la bibliothèque du CIRAD-EMVT. Cette approche donne déjà lieu à enseignement dans les universités de Guelph (Canada) et Berlin (Université Libre) dans le cadre de leurs cursus en épidémiologie (MSc). Il n'en existe à notre connaissance aucune validation.

Les deux approches en sont la **recherche de signes de maladies** par les interviews (détection épidémio-vigilance) et la **surveillance des maladies présentes** (incidence et variation) via les méthodes PRA en vue de réaction. Ces approches ont à mon avis un sens quand la réponse aux problèmes quotidiens des éleveurs est par ailleurs traitée (système de services cliniques et quelquefois préventifs en place) ce qui est une **condition préalable** à la participation des éleveurs.

L'approche participative permet d'envisager **l'analyse du risque** dans une autre perspective que celle habituellement proposée dans les textes internationaux et traitant du problème de l'accès au marché international et des garanties sanitaires. En effet l'agrément SPS de l'OMC dont l'OIE se porte garant impose de disposer de **données** aptes à permettre une évaluation de ce risque. L'approche participative en épidémiologie peut permettre de renforcer la collecte de données en particulier dans les **zones où aucune donnée n'est disponible** (titre d'un livret édité par les auteurs publié par l'IIED). Elle peut permettre en particulier de renforcer la surveillance des maladies

(*disease surveillance*), dans le sens de l'information pour l'action selon la formule du CDC d'Atlanta. Les approches classiques ont montré leurs faiblesses quand il s'agit de représenter les zones marginales pastorales qui sont pourtant des zones essentielles dans la lutte contre les maladies trans-frontalières. Les données récoltées selon des moyens académiques le sont à très haut coût (Epidémio-surveillance active par enquêtes formelles), tandis que les données récoltées selon des moyens participatifs le seraient à moindre coût, la question posée serait donc pas de données du tout versus données à faible coût.
Le problème que pose cette approche est celui de la **qualité** des données récoltées, leur **unicité** (pas de croisement possible avec d'autres informations pour évaluer leur justesse et pas de *gold standard*) ainsi que la **reproductibilité,** leur **sensibilité** et **spécificité** des méthodes de PRA (la robustesse des déclarations doit permettre de déceler des variations de grands syndromes, pas de maladies en particulier (par exemple statuer sur la recrudescence de problèmes respiratoires, pas de la PPCB). Cette approche est d'ailleurs complémentaire de l'utilisation de telles données agrégées en paquets dans d'autres secteurs de la santé (santé humaine, utilisation des DRG (Diagnostic Related Groups) pour la définition et la planification de l'offre, cf. le système d'information PMSI hospitalier en Europe). La méthode de détection doit être considérée comme tout test de diagnostic, et son utilisation pour des **garanties internationales** est plus problématique alors car des exigences de spécificité et de sensibilité pourraient être proposées et spécifiées par les institutions internationales. Par ailleurs les auteurs défendent l'idée que ces données peuvent être utilisées dans la formalisation et la simulation à partir de certains **modèles épidémiologiques** (SEIR par exemple). On trouve une illustration de cet aspect dans le document de l'IIED "*Where there are no data*" fourni en annexe, encore une fois les modèles ne donneront de bonnes images qu'à la condition d'être bien "nourris".
L'approche s'applique donc à la **surveillance des maladies** par les communautés et à la recherche de la **présence des maladies** (détection, vigilance) en adressant les communautés par la PRA.
Si on peut concevoir que cette approche ait un intérêt du point de vue de la collectivité engagée dans son propre processus de surveillance des maladies, ce qui inclut aussi un état sur son territoire, elle nous semble plus limitée et peu réaliste sur les forums internationaux de gestion des risques et est de toutes manières en attente de validation. L'approche est cependant séduisante car elle permet à terme de **croiser les informations** recueillies par PRA avec des informations recueillies par des méthodes académiques (enquêtes) à un autre coût et pour une efficacité différente, et ce peut être l'objet d'une étude et d'un **arbitrage coût efficacité** (le coût et le bénéfice de l'information) des stratégies de récolte de l'information épidémiologique.

Enjeu pour la recherche au CIRAD-EMVT équipe économie de la santé
Equipe Economie
A ce titre un enjeu pour la recherche pourrait être de traiter de la **valeur de l'information** en épidémiologie (bénéfice attendu) plutôt que son coût de collecte ce qui est assez proche de la valeur de la **prévention** (l'information servant l'action préventive), de l'investissement. Des travaux au CREDES sont disponibles dans ce sens en santé humaine et peuvent illustrer ce débat et permettre d'initier des hypothèses et thèmes de recherche en santé animale, les travaux sur les technologies de l'information (Internet) et leur utilisation peuvent aussi alimenter certains débats en santé publique.

Continuité du travail sur la PPCB à l'ILRI dans le cadre du travail de l'équipe CIRAD ILRI
Enfin une approche participative de la PPCB pour l'adoption de techniques préventives et correctives de la maladie (diagnostic, soins, vaccins, de pratiques à moindre risque : isolement et surveillance d'animaux introduits dans les élevages, échanges d'animaux contrôlés avant les confiages) peut être considérée comme un enjeu majeur sur le terrain pour couvrir le risque PPCB en Afrique. Cette approche de futurs projets de recherche peut en particulier se positionner dans le cadre de la nouvelle stratégie ILRI CGIAR dite "*pro-poor strategy*" et sous couvert du thème 2 du document stratégique de l'ILRI (*innovation delivery and dissemination*). Ce peut être l'occasion de

croiser le travail **académique** déjà réalisé (modélisation, épidémiologie, économie) par le projet ATP CIRAD en Ethiopie, travail qui devrait être mis en continuité grâce à un nouveau projet de recherche partant des mêmes principes de modélisation mais renforcé en particulier sur les sciences humaines (géographie, économie, sociologie), et incluant des approches de diagnostic participatif et de résolution de conflits (méthodes de négociations) et pouvant ainsi mettre à contribution d'autres partenaires internes (CIRAD : équipe économie par exemple sur un thème comme la décision des éleveurs et les outils de négociation, l'équipe CAPE AU IBAR de Nairobi, et à l'ILRI l'équipe basée à Nairobi du projet AHS DFID FFS, Field Farming School, Bruno Minjauw), ainsi que de nouveaux partenaires externes (ONG, association d'éleveurs).
C'est pourquoi, afin de croiser avec les nouvelles orientations de la recherche à l'ILRI, Pascal Bonnet et Matthieu Lesnoff préparent un projet de recherche pour la continuité de l'ATP PPCB du CIRAD qui sera orienté dans le sens d'une approche académique et participative de la maladie PPCB, de sa diffusion et de son contrôle (reprenant le concept note diffusée en juillet sur l'étude de prévalence et l'impact de la PPCB et des méthodes de contrôle). Ce projet sera basé sur un partenariat terrain avec des associations d'éleveurs ou des ONG (Candidats ACF APDA, ANS, COOPI) afin de coller aux conditions du thème 2 et sur deux cibles géographiques en Ethiopie (à *priori* : Afar en partenariat avec ACF et APDA, et W. Wellega avec partenaire à définir).

Position of OIE in relation CAH/surveillance, présenté par Alejandro Schudel OIE

L'auteur présente les missions et l'organisation actuelle de l'OIE. Les conclusions essentielles de cet exposé est que l'OIE n'a pas adopté de position de principe sur ce sujet ni sur les normes reconnues en matière de système de soin et de surveillance, car elle est la voix des pays membres qui ne sont pas tous persuadés ou même concernés de l'intérêt de cette approche dans leur majorité. En effet entre ceux qui n'ont pas besoin des CAHW's (pays du Nord et certains du Sud) et ceux qui auraient cruellement besoin que la reconnaissance du système de santé passe par la reconnaissance et la légalisation de certaines composantes discutées ici (les CAHW's), la frontière est très marquée, elle peut seulement aboutir à des arrangements à l'échelle régionale au sein d'une communauté d'échanges économique limitée ce qui relève plus du droit contractuel bilatéral (ce peut être un enjeu des délégations et commissions régionales de l'OIE, ou de commissions spécialisées). A notre avis le problème est loin d'être réglé. Par ailleurs les CAHW's dans la Corne de l'Afrique par exemple servent dans des non-états exportateurs de bétail vers le Moyen Orient qui ne sont même pas reconnus par les Nations Unies (Somaliland, Puntland) ce qui est une condition préalable à la reconnaissance de leur système de santé animale par l 'OIE. On se situe donc ici à la frontière du domaine technique présenté par le débat sur les CAHW's, toutefois un groupe *ad hoc* de l'OIE pourrait être formé sur ces thèmes.

Case studies:
PACE country coordinators for Kenya, Uganda, Tanzania and Ethiopia: cross-border issues related to the provision of animal health services with reference to Kenya, Uganda, Ethiopia and Tanzania.
Cette présentation a été courte et centrée sur l'épidémiosurveillance et ses outils.

Bryony Jones (VSF-Belgium): RP surveillance in Southern Sudan
Cette présentation a été annulée car le représentant officiel du Soudan n'était pas d'accord avec les conclusions de l'exposé.

Friday 18th: Morning: 9.00 am - 1.00 pm. Theme Four: 'Making it happen'
Afternoon: 2.00 pm – 5 .30 pm. Wrap-up and close

Theme Four: 'Making it happen'

The objective of this theme is to raise awareness of the methods available to 'make it happen', eg:

- interaction between stakeholders
- changing the way we work
- how to feed stakeholder viewpoints into policies
- breaking down of traditional hierarchies
- more gender sensitive approaches
- building in focus on quality of service
- curriculum development

Lead:
Lindiwe Sibanda with CAPE team

Cette présentation qui revêt un caractère de prêche (!) étonnante dans un débat de type technique mais classique dans les pays anglo-saxons pose le problème de comment va t'on faire reconnaître la place des CAHW's dans le système de santé mondial et ses institutions, et le nécessaire changement de paradigme y est repris et argumenté. Elle pose globalement le problème de la **représentation des minorités** ce qui n'est pas spécifique de la santé animale, et le problème du **point de vue** et des indicateurs (nomenclature) pris dans la résolution ou l'évaluation des problèmes et des solutions en santé. La réponse du PACE sur ces approches aurait été la création du CAPE (mais on peut se demander quel degré de coordination et de supervision AU-IBAR-PACE a sur CAPE qui est auto-financé en bilatéral pour la plupart de ses actions).

Case studies:
KETRI/NVRC-KARI: experience of change from conventional to a participatory research approach in two Kenya research institutions.
Cette présentation introduit l'usage de la PRA dans un organisme de recherche, le KARI au Kenya, en vue d'améliorer son efficacité à délivrer les produits de la recherche, et suite à une revue effectuée au travers des méthodes SWOT.

Peter Sinyangwe and Nick Clinch (Zambia): Increasing the efficiency of livestock service delivery – the experience of livestock sector Service delivery in Zambia

Berhanu Admassu (Ethiopia): an example of a community based approach to animal health service delivery, including supporting policies and legislation, linkages between stakeholders, gender issues. Example of experience from the field influencing policy

Cette présentation introduit l'usage de la PRA et des CAHW's dans la lutte et l'éradication en Ethiopie de la peste Bovine ce qui a mené l'état éthiopien à se déclarer en free zone RP (sauf cordon sanitaire à l'Ouest). Le système et l'organisation du PARC en Ethiopie (BCO, équipes régionales) sont présentés et l'utilisation des paravets Afar est évaluée (en particulier la capacité de vacciner sans enclos en plein bush grâce aux éleveurs eux-mêmes et leur proximité avec les

animaux), elle a permis d'obtenir 80 % de couverture vaccinale et de contrôler la maladie en deux ans. La difficulté de projeter cette *success story* sur d'autres maladies et programmes vient du fait que dans la zone Afar où elle a été appliquée une seule vaccination du vivant d'un animal d'un vaccin thermotolérant a permis d'atteindre les objectifs du programme et la faisabilité était donc très bonne. Dans le cadre d'autres maladies contagieuses, sujet de recherche et de travail du PACE telle que la PPCB, la nécessaire vaccination avec utilisation de la chaîne du froid et la répétition au moins tous les six mois de la vaccination au cours de la vie des animaux multiplie les difficultés à réaliser les opérations, mais d'une certaine façon justifierait d'autant plus le recours à la participation des éleveurs eux-mêmes organisés mais non autonomes.
Les exemples en Ethiopie de l'utilité des paravets sont aussi présentés dans la session des posters dans le cadre du projet ACF MAE Afar (voir poster en annexe) où les paravets participent à des vaccinations de masse sur l'Anthrax et la BlackLeg qui sont des maladies telluriques classiques de fin de saison sèche. La vaccination PPCB a été aussi réalisée avec un soutien logistique puissant en partenariat avec les autorités sanitaires locales.

C.S. Leksmono/John Young ODI: Indonesian experience of introducing a pro-poor focus in the livestock sector.
Les exemples de réforme du système de santé en Indonésie sont présentés au cours de l'histoire complexe de ce pays. L'utilité d'une résolution des problèmes sanitaires via la décentralisation extrême des services au niveau des villages et avec usage de la PRA est introduite et évaluée.
Les **études d'impact** ne sont pas légion en la matière mais sont sources de problèmes méthodologiques et de faiblesses. Celle présentée n'échappe pas à la règle mais donne des références en matière d'évaluation financière (TRI et VAN) mais pas en évaluation économique *sensus largo* (impact social dans les populations les plus pauvres). Le site **www.deliveri.org** est présenté (documents sur le sujet).

Isolina Boto CTA
Les exemples d'intervention du CTA pour la diffusion des informations techniques pour les pays ACP sont rappelés. Je rappelle l'existence de deux documents de référence du CTA datant des années 1984 (Réunion de Bujumbura CTA GTZ IEMVT, le rôle des auxiliaires d'élevage en Afrique) et 1988 (Bangui RCA GTZ IEMVT Vers une nouvelle structure pour la santé animale en Afrique), sur des thèmes similaires en Afrique de l'Ouest qui font état de la précocité de cette réflexion en Afrique de l'Ouest au moment des PAS.

Group discussions

- Groups will be formed along professional lines, ie all state vets together, deans of vet schools, private vets, etc.
- Have they tried change processes and what are the lessons they have learnt – including examples presented at this conference?
- Which stakeholders should be involved in bringing about institutional change
- Barriers to policy change
- Timelines will be developed for the change process: what needs to be done and when?

Wrap-up:
Led by Florence Kasirye

Afternoon: Wrap-up session and close

Les recommandations sont discutées. Les actes du colloque devraient être disponibles d'ici un mois, un consultant ayant été embauché spécialement dans ce cadre.

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ANNEXES

- Mission travel to Kenya October 14-20, 2002
- Summary of the report
- Brochure de la conférence
- Liste des participants
- Programme préalable
- Copie des cartes de visites des personnes rencontrées
- Lettres administratives d'invitation
- Poster présenté en A4
- Annexes documents distribués dans le colloque :

  - Issue papers N°110 de l'IIED en anglais et français

  - Plaquette CAPE

  - Actes du colloque précédent du CAPE : Participatory Epidemiology

  - Document stratégique de l'ILRI 2002-2010 avec la liste des cinq thèmes directeurs de la stratégie dans le cadre de la lutte contre la pauvreté

MISSION TRAVEL TO KENYA
OCTOBER 14-20, 2002

Mission travel to Kenya
October 14-20, 2002

Name of traveler: Pascal Bonnet

Title of travelers: Coordinator project PA51ADD at LPAP ILRI Ethiopia

Project: Programme/project of traveler: Livestock Policy Analysis Programme

Date Start: October 14th 2002

Date End: October 20th 2002 (conference end 18th)

Departure City: Addis Ababa, Ethiopia

Destination City: Mombasa, Kenya

Purpose:

1) Attend the international workshop on **PAHC Primary Animal Health Care in the 21st Century: Shaping the Rules, Policies and Institutions** organized by CAPE OUA IBAR group CAPE = Community based animal health and participatory epidemiology unit at OAU IBAR Nairobi.

2) Present a **poster** (poster session) based on the experience of a collaborative support from CIRAD-EMVT & ILRI-LPAP PA51ADD (research team based in Addis) to ACF (*Action contre la faim*: Action against Hunger), an international NGO working in the Afar & Ogaden regions of Ethiopia and developing alternative Animal Health services to pastoralists (CAHW's based) within an integrated approach of pastoral development.

3) Represent ILRI Ethiopia, ACF and CIRAD to the workshop, participate to the debate & discussion with participants of the workshop on methods of research, issues of concern for developing appropriate delivery systems for **PAHC** in the Horn of Africa..

4) Discuss with ILRI-Nairobi staff (Bruno Minjauw), CAPE staff and colleagues from international organizations represented (FAO, OIE, DFID, ODI) in order to explore common interest, opportunities of research & collaboration particularly in the frame of a new forthcoming project concept note based on PA51ADD background (currently "Delivery of Animal Health Services with particular emphasis on one contagious disease CBPP").

5) Write English and French reports for institutions

SUMMARY OF THE REPORT

Summary of the Report

Background

Bonnet traveled to Kenya to represent ILRI & CIRAD & ACF (an NGO partner) and meet colleagues attending the workshop **PAHC Primary Animal Health Care in the 21st Century: Shaping the Rules, Policies and Institutions** organized by CAPE OUA IBAR group, CAPE = Community based animal health and participatory epidemiology unit at OAU IBAR Nairobi). This workshop is the second workshop organized by CAPE after the one held in Addis (November 2001) on a similar issue "**Participatory Epidemiology Lessons Learned and future directions**". The aim of CAPE workshop series is to discuss issues of concerns about Delivery of Animal Health services to the poor of marginal areas (mainly pastoral areas but not only) and how to improve the participation of the community into the global Animal Health System of a given country.

During the Workshop some international institutions were presenting their understanding of the problem and their participation to the debate were as such:

- OIE: Roles and objectives of OIE, position with regards to the CAHW's
- CTA: Support given to publication in this topic
- FAO PPLPF Pro-poor policy was presented: a DFID funded in initiative at FAO
- CAPE at AU IBAR per se: position of the problem
- PACE at AU IBAR: interest in building strategies for disease control
- DFID-IIED: strategy with regards to the topic
- Various organizations presented their experience based on field projects all over the world (almost all continents invited: Asia, Latin America, Africa)

Animal Health Systems are currently under the process of development of Health systems evaluation procedures that should be complementary to official declaration of freedom of diseases by countries (and its various steps based on OIE pathways). This process is being made to reinforce procedures on risk assessment when animal products are being exchanged between countries (globalization of trade on animal products and alive animals). The legal frame is the SPS agreement (OIE WTO) as a basis of negotiation between parties. This is not including bilateral agreement that may happen between countries. All regulations may represent barriers to access international or regional markets by smallholder livestock producers (particularly in the pastoral areas of the Horn of Africa see[1]). Market access has always been mentioned as a key problem by pastoralists and organizations working in the lowlands wherever it was (Afar Borana, Ogaden, reference is made to minutes of monthly meetings of the Livestock Working Group LWG at ECA UNDP Emergency Unit for Ethiopia EUE). Therefore there are clear implications that new forms of animal health services might allow smallholder livestock producers to access globalized markets and regional ones.

ILRI should better participate with ACIAR and NGO's in addressing this problem peculiarly given the new orientation of its research. The topic is fully encompassed by several themes of the new strategy (theme 2 ***Enabling access to innovation adapting and delivering technology and information*** which relates to the alternative pathways to delivering Health technologies and relay epidemiological and disease knowledge information from field to ministries and reverse way, and theme 3: *Improving market access: opportunities and threats from globalization and the Livestock revolution,* since one of the issues is to release barriers to trade due to OIE List A diseases, and theme 5: *Sustaining lands and livelihoods: improved human and environmental health,* since delivery of animal health services is only a part of the sustainable development of poor households

when delivering services (credit, human health.) to geographically remote or socially marginalized areas and population groups). ILRI CIRAD Team PA51ADD has been participating to the debate and addressing this problem towards a research and action form of collaboration developed with several NGO's in Ethiopia (I remind COOPI, LVIA, ACF, Farm Africa, ANS-HI) and participation to numerous debates in UN-lead forums.

Given the new mandate of ILRI to addressing issues of poverty as a result of globalization, the institute should build up a strategy with regards to development and evaluation of Health systems so that we provide evidence that alternative health systems are more likely to respond to OIE WTO regulations, or are able to help building up confidence towards bilateral or multilateral agreements based on regional markets (reference to RVF ban for instance in the Horn). As a matter of fact, PA51ADD is currently committed to NGO-field related work on the topic, and Bonnet has been participating last year to the writing of a synthesis document (policy brief PLA Participatory Learning and Action notes published at IIED, funded by DFID: *CBAHW's Community based Animal Health Workers, Threats or Opportunity*) that will summarize case studies based on the involvement of communities into Animal Health systems and other service delivery, and develop a global rationale.

Nevertheless I would consider that PAHC reform as addressed by CAPE and all stakeholders should carefully take stock of what happened in Human Health when applying the same strategy (review of the experience of PHC in Human Health starting with Alma Ata declaration from WHO, "Primary Health care for all"), since implementation of PHC in the human sector has been a failure for some reasons, though it was based on preventative strategies.

Schedule of the workshop

Theme One: General policy, legislation and institutional issues
Theme Two: Sustainability and privatisation
Theme Three: International issues
Theme Four: 'Making it happen' Afternoon: Wrap-up and close

Main statements and problems raised are listed as following (including personal statements):

- Presentations on historical background and terminology (e.g. very sensitive and significant differences between francophone West Africa and anglophone Eastern and Southern Africa).➔ needs international commitments on clarifying terminology in main languages used at OIE (glossary).
- Market and state failures to deliver services are the most common reasons why CAHW's have been developed, though state has generally been the first stakeholder to commit the community to better achieving public vaccination campaigns. NGO's have been taking over after SAP's have had provoked state failures [2].
- PRA is being presented as a manner to better address population needs and is seen as a peculiarly important and effective way at negotiating and training with stakeholders (Field Farmers school concept, reference ILRI-AHS-DFID Minjauw poster). Today's topic is to apply PRA to decision making at policy maker's level.
- Position of the problem given new strategy to reduce poverty and particularly in HIPC *Heavily indebted Poor countries*: elements into PRSP's (*poverty reduction papers*) and NSSD's (*National sustainable development policy)*, new position of World Bank on use of PRA towards community commitments (reference: Pastoral Community Development Project & Project Implementation Manual Preparation and Terms of Reference 2002, WBK Pastoral project in Ethiopia)

- Differences of approach and status of CAHW's between francophone Africa compared to other African countries: role of the consumers and therefore problems of liability when employing CAHW's, and role of farmers associations, private vets, and state as the virtuous tripod to better incorporate CAHW's, this may reflect difference of achievement of reform on Livestock sector in West Africa. Is poverty better addressed by providing market access or by charity actions ? Is the question that remains unanswered in the debate.
- Differences of conclusion when approaching Animal Health problems by a holistic approach (Health System concept) versus approaching it only by a Health Service approach.
- New Institutional Economy has a lot to bring into the debate (D. Leonard Berkeley) on evolution of Health systems in Africa.
- Choice of best bet Health service Delivery systems is also depending upon the **perspective** and **time horizon** which is privileged, as any economic evaluation of Health program would do in an academic way when comparing alternatives. Therefore comparing strategies which are not based on same perspective and time horizon may lead to some contradictions and CAHW's versus other alternative is one example.
- Participatory epidemiology is an alternative mean to developing information system for better Health needs assessment and to provide information for health planning and epidemiosurveillance as well. It should be validated through comparisons with academic procedures. This will be proposed as a component of our new project based on "*Pro-Poor policy and Animal Health needs assessment within a population & appropriate response from health system towards adapted service delivery and health planning, an illustration studying one disease in several benchmarks in Africa*".
- Bonnet presented a poster based on paravets activity in Afar with regards to vaccination and curative treatments they undertake, and consequent improvement on social and spatial accessibility. Explanation of their theoretical advantage is given with reference to New institutional economics and Transaction cost theory but linkage with other health sub system is also required.
- OIE has no position with regards to CAHW's other than the position of its majority of members. Therefore an opposition between countries who will need CAHW's system recognition opposed to those who don't need such system is likely to occur in the future.

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BROCHURE DE LA CONFERENCE

Venue

The venue for the conference is the Whitesands Hotel, Mombasa, Kenya. This is a very attractive hotel on the shores of the Indian Ocean, close to the historic town of Mombasa and with easy access via an international airport. Several of Kenya's national parks are accessible from Mombasa. Accommodation at Whitesands Hotel will be available at the special conference rate of US$60 per single room on a full board basis.

Further information

This leaflet is to provide initial information about the conference. Please register your interest in attending the conference by contacting us:

Conference organizer

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If you intend submitting a paper or poster please tell us which theme it will fall under and the draft title. If you would like to be considered for sponsorship please indicate this when you contact us.

Donors

This conference is funded by DFID and CTA.

DFID Department for International Development

CTA

The main donor for the CAPE Unit is the Department for International Development (DFID), United Kingdom. Additional support is provided by the Regional Economic Development Services Office (REDSO) and the Office for Foreign Disaster Assistance (OFDA), USAID and the European Commission's Development Fund.

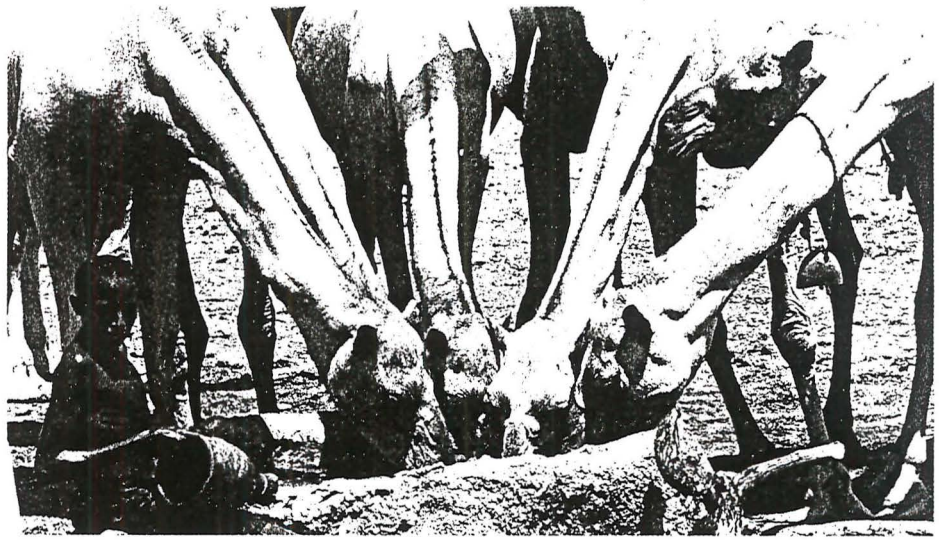
First announcement

Primary Animal Health Care in the 21st Century: Shaping the Rules, Policies and Institutions

An international conference

Mombasa, Kenya

15-18th October 2002



Community-based Animal Health and Participatory Epidemiology (CAPE) Unit
Pan African Programme for the Control of Epizootics (PACE)
Organization of African Unity/
Interafrican Bureau for Animal Resources (OAU/IBAR)

Introduction

The last twenty years have seen radical changes in veterinary service provision. Structural adjustment, veterinary privatisation and other factors have led to new and emerging policy environments. While there are increasing opportunities to develop more sustainable, basic-level veterinary services in rural areas, there is also a need to ensure that new services assist countries to market livestock and livestock products in a global market.

From the 15th to 18th October 2002, the Community-based Animal Health and Participatory Epidemiology (CAPE) Unit is organising an international conference in Mombasa, Kenya.

The objectives of the conference are to:

- review progress with the formulation of supporting policies and legislation for primary-level animal health workers
- identify key lessons learned and make recommendations regarding future policy and legislative needs

The conference will take the form of keynote presentations, submitted papers and posters and facilitated group discussions to arrive at recommendations regarding future policy and legislative needs.

Sponsorship will be available for limited numbers of selected participants to cover the costs of travel and accommodation.

Papers and Posters

Papers and posters are invited on the five themes outlined below. Papers selected by the technical committee will be limited to 15 minutes for presentation with a further 5 minutes for discussion. A 200 word abstract should be submitted by end of March 2002 and an electronic and hard copy of the full paper should be available at the conference. Full proceedings will be published shortly after the conference.

Theme One: General policy, legislation and institutional issues

- Processes for policy reform: top-down, bottom-up and others
- Research and information needs for policy change
- Changing the law: ensuring flexibility in the new rules
- Regional and harmonised approaches
- Changing policies versus changing institutions
- How to measure the impact of new policies and rules
- Case studies

Theme Two: Financial sustainability and privatisation

- State-run systems, revolving funds and privatisation
- Experiences from non governmental organisations
- The private sector - private vets linked to community-based animal health worker networks
- Other roles for community-based animal health workers extension, human health and other options
- Policy in relief situations: working with the private sector to deliver emergency interventions
- Case studies

Theme Three: Policies and Animal Health Research

- Experiences in participatory approaches to animal health research
- Researcher agendas versus community agendas
- Approaches and methods for participatory research
- Delivering research outputs via community-based programmes
- Evidence of impact and sustainability

Theme Four: Policy on training and learning issues

- Educational and training needs for veterinarians
- Ensuring effective and participatory selection of trainees for community-based training programmes
- Training curricula, methodologies and certification for community-based animal health workers
- Developing national curricula for community-based animal health workers: the pros and cons of standardisation

Theme Five: Policy on community-based surveillance

- Linking community-based animal health workers to national epidemiology units
- Participatory methodologies for disease surveillance
- Training needs and testing community-based surveillance systems
- Case studies

LISTE DES PARTICIPANTS

PRIMARY ANIMAL HEATH CARE IN THE 21ST CENTURY: SHAPING THE RULES, POLICIES AND INSTITUTIONS

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PROGRAMME PREALABLE

Primary Animal Health Care in the 21st Century: Shaping the Rules, Policies and Institutions

DAILY SCHEDULE

Tuesday, Wednesday, Thursday morning and Friday

8.30am First session

10.30am-11.00am Coffee break

11.00am-12.30pm Second session

12.30-2.00pm Lunch

2.00pm-3.30pm Third session

3.30-3.45pm Tea break

3.45-5.00pm Fourth session

Thursday afternoon: optional excursions and activities
Friday afternoon finish at 6.00pm

Opening ceremony

Monday 14th, evening from 7.00pm in the hotel gardens

7.00 pm Introduction and welcome by CAPE and speeches by CTA, FAO, OIE, DFID

7.30 pm Cocktail for all participants and invited guests sponsored by Intervet

Approx. 8.00pm Welcome by Acting Director AU-IBAR, official opening by Kenyan Minister of Agriculture and Rural Development

Continue with cocktail

Primary Animal Health Care in the 21st Century: Shaping the Rules, Policies and Institutions
PROGRAMME

Tuesday 15th:
All day, 8.30am-5.00pm

MORNING:
Scene setting
Theme One: General policy, legislation and institutional issues

Scene setting:
Florence Kasirye – Evolution of animal health service delivery in the Greater Horn of Africa (20 minutes)

Video: '*The voice of the livestock keeper*'

Group exercise: what are the three most important features of an animal health service in Africa?

Theme One: General policy, legislation and institutional issues

Key note:
John Thompson (IIED, UK) – Participatory Approaches for Influencing Policies, Processes and Practices: Lessons from North and South (20 minutes)

Case studies:
Dr A P Rutabanzibwa (Tanzania): Veterinary Legal Reform in Tanzania (a5 minutes)

Raphael Coly (Senegal) presented by Cheikh Ly: The situation with paravets in Senegal (15 minutes)

Dr Soaure (Guinee): Title to be announced (15 minutes)

Video: *'The Business of Paradigms'* - opportunities offered by adopting new paradigms.

AFTERNOON:
Working groups
Presentations by working groups

Wednesday 16th:
All day, 8.30am-5.00pm

Theme Two: Sustainability and privatisation

MORNING:
Recap day one
Theme Two: Sustainability and privatisation

Keynote:
David Leonard (USA), Cheikh Ly (Senegal- presenter in French) and Pam Woods (Zimbabwe): Community-based animal health workers and the veterinary profession in the context of African privatization (20 minutes)

Case studies:
Stuart Hargreaves (Zimbabwe): The Zimbabwe experience (15 minutes)

Peter Sinyangwe and Nick Clinch (Zambia): Increasing the Efficiency of Livestock Service Delivery - the Experience of the Livestock Sector in Zambia (15 minutes)

Bonaface Kaberia (Kenya): Effectiveness and financial viability of privatised animal health delivery systems (15 minutes)

Yacob Aklilu (Kenya): The impact of relief aid on community-based animal health programmes - the Kenyan experience (15 minutes)

AFTERNOON:
Working groups
Presentations by working groups

Thursday 17th:
Morning: 8.30am-12.30pm.

Theme Three: International issues

MORNING:
Recap day two
Theme Three: International issues

Keynote:
Jeffrey C. Mariner (Tufts, USA- presenter), Andy Catley and Cristobal Zepeda (US Dept. of Agriculture): The role of community-based programmes and participatory epidemiology in disease surveillance and international trade (20 minutes)

Alex Schudel (OIE): Presentation by OIE (15 minutes)
Discussion

Case studies:
PACE country coordinators for Kenya, Uganda, Tanzania and Ethiopia: Cross-border issues related to the provision of animal health services with reference to Kenya, Uganda, Ethiopia and Tanzania (15 minutes)

Bryony Jones (VSF-Belgium): RP surveillance in Southern Sudan (15 minutes)

Afternoon: 2.00pm-6.00pm.

Optional visits/activities interest:
- **Tour of Mombasa and Fort Jesus**
- **Bamburi Nature Trail**
- **Glass-bottom boat/snorkelling**

Friday 18th:
All day, 8.30am-6.00pm

Theme Four: 'Making it happen'
Wrap-up and close

MORNING:
Recap day three
Theme Four: 'Making it happen'

Led by Lindiwe Sibanda with the CAPE team

Keynote:
Lindiwe Sibanda (Zimbabwe): Advocating for the missing link in our change strategy (25 minutes)

Case studies:
KETRI/NVRC-KARI (Kenya): National Agricultural Research Systems experiences in the use of participatory approaches to animal health research in Kenya (15 minutes)

Berhanu Admassu (Ethiopia): Primary Animal Health Care in Ethiopia: The experience so far (15 minutes)

C.S. Leksmono/John Young (Indonesia/UK): Indonesian experience of introducing a pro-poor focus in the livestock sector (15 minutes)

AFTERNOON:
Working groups
Presentations by working groups

Wrap-up and evaluation
Led by Florence Kasirye

5.30-6.00 pm Closing ceremony and vote of thanks

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Pro-Poor Livestock Policy Initiative

A Living from Livestock

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-----Original Message-----
From: stilson@uneca.org [mailto:stilson@uneca.org]
Sent: 15 July 2002 16:52
To: edna.stewart@ed.ac.uk; edna.stuart@ed.ac.uk; 9108960@vet.ed.ac.uk; David.Smith@ed.ac.uk; david.smith@vet.ed.ac.uk
Cc: AndersSusan@aol.com; p.bonnet@cgiar.org; drstnt@yimesgin.org
Subject: Your Visit to Ethiopia

Dear Dr. Smith,

I am following up on a conversation that I had with Ms. Edna Stewart today regarding your visit to Ethiopia next week. I have lived in Ethopia for seven years and own horses that I maintain at the Government's Jan Meda stables (Ethiopian Equestrian Association). While on a visit to Kenya, I received your name and a copy of your 28 May letter to Ms. Jean Girchrist of the Kenya SPCA and also spoke to Dr. Vijay Varma, the veterinarian on retainer to the KSPCA and the Donkey Trust, regarding your plan to conduct farmer's workshops in Ethiopia "to improve awareness of welfare issues among donkey owners."

In that regard, I had hoped to contact you about several matters. First, I am hoping that you might consider having a young man named Daniel Yifrew work as your apprentice for the period of your stay in Ethiopia. I would meet all his expenses. I have known Daniel as an employee for four years as someone who tends horses in our stable. During that time, he showed a marked ability with sewing, especially with our leather tack. Increasingly, the horse community in Addis is dependent on Daniel to repair saddles, bridles, girths and other harness as well as sewing saddle pads and horse blankets, In fact, several years ago, Daniel heard about work being undertaken in Ethiopia to better the

POSTER PRESENTE A4

CAHW's: From a pragmatic perspective to an institutional holistic & geographical one: contracting and linking stakeholders within the animal health system, some illustration from the Afar region (Ethiopia). *P. Bonnet, C. Bouet, Chalimbaud J.*

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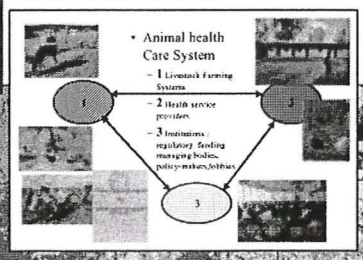

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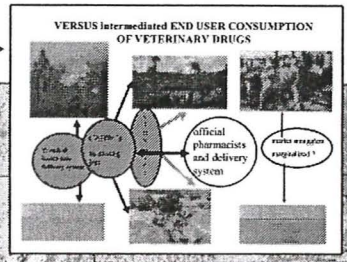
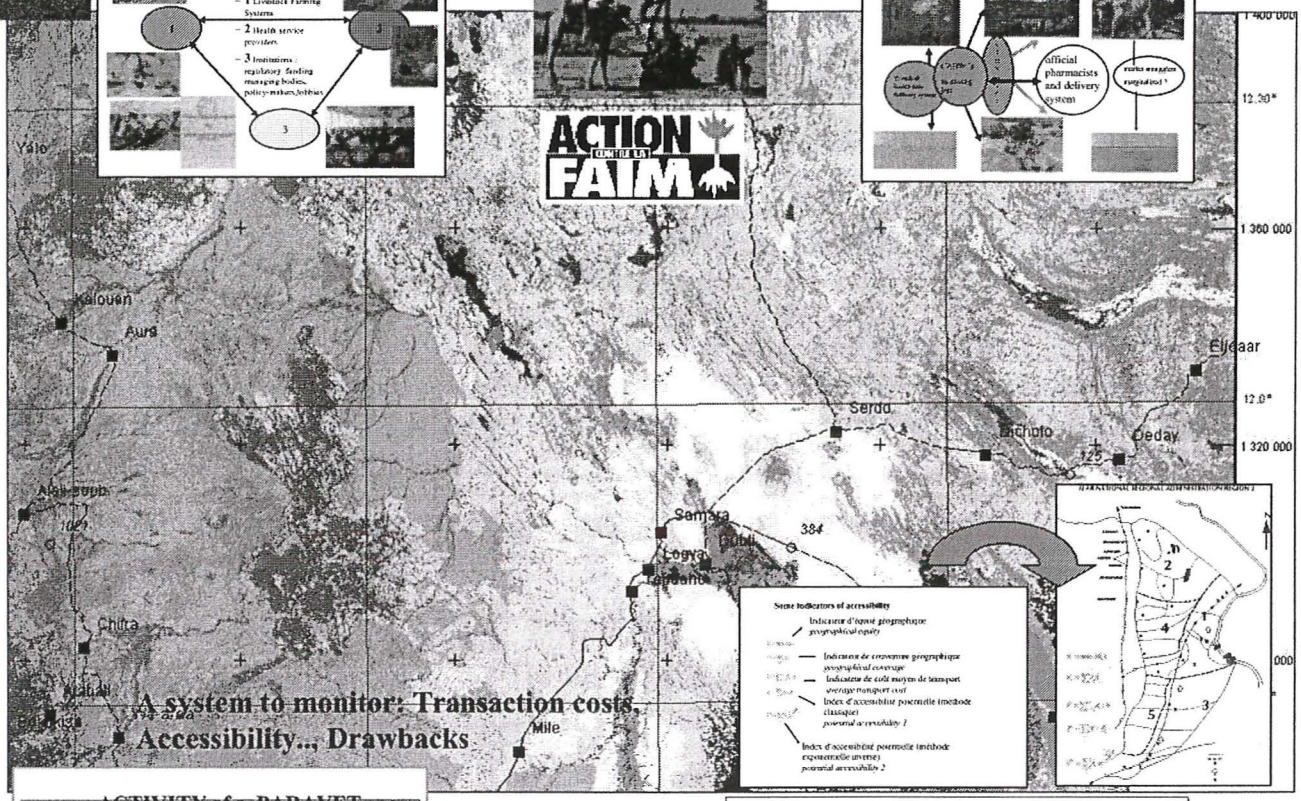
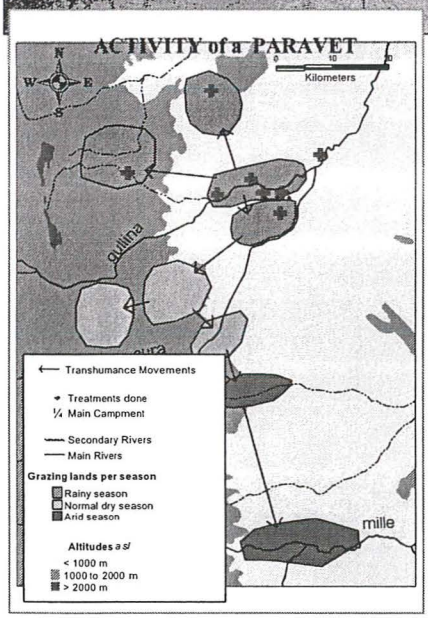
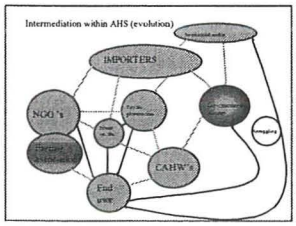


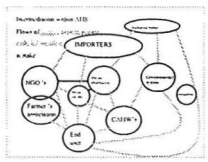


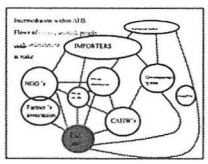
A system to monitor: Transaction costs, Accessibility.., Drawbacks

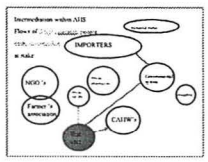


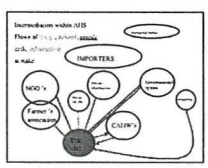
Five flows and several boxes to organise: drugs, people, animals, money, information

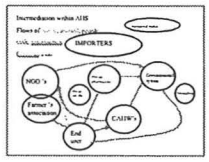












Institutions and Transaction costs

- Some economists identified **institutions** as playing a key role in any economy
  - **legal** institutions: (laws, rules, obligations) as implicit or explicit **contracts** that agents are obliged to follow.
  - **social** institutions: the status of various people and their role may alter the normal behavior of individuals and interfere on distribution of rights , duty, power, awards and penalties delivered
  - **economic** institutions: **market** and **rules** or **conventions** out of markets
- **Imperfect Market in Animal Health is mainly due to:**
  - **State** involvement (federal, regional, local, interregional, international)
  - **externality** : negative, positive
  - **asymmetry** of information
  - role of **uncertainty**: disease = risk
- Some **Institutions** (organisations, rules..) consequently **emerged** from the observation of the AHS in Ethiopia to substitute for the market
  - statal hierarchical system

- **Standard theory**
  - *Homo-economicus*
  - Inter-individuals *coordination is* profit oriented
  - Market may regulate the system: e.g. veterinary drug commodity sector
  - but there are **imperfect** markets and market **failures** in health due to entry barriers, economy of scale, monopoly, externalities, low demand due to low purchasing power, scattering of transactions, low negotiation power, limited rationality..
- **Contract theory**
  - *Homo contractor*
  - which contracts are more likely to be adapted to some health context given their characteristics ?
- **Institutional Economy Transaction Costs TC**
  - farmer or health care providers face numerous TC when considered as micro economics agents
- **Convention theory**
  - any **coordination** is made between individual agents but results under a given **conventional** behavior which is a adopted from a group
  - there are some classic conventions: the **firm** is providing a convention illustration
- **Agency theory**
  - where do we find agency relations (between **principal** and agent) that may hamper proper functioning of the system

Service or treatment : dimensions of satisfaction of the user:
type of human relationship during service use
technical quality of care (skill, staff, equipment, drugs..)
perceived quality by user
cost and price and forms of funding
influence of care on other economic activities of users

Some indicators for quality of Health Care
Efficacy efficiency, utility of care: Economical & financial advantages
Environnement physical of care: Accessibility, Availability along time : continuity along time, response time
Reduction of transaction costs

ANNEXES DOCUMENTS DISTRIBUES DANS LE COLLOQUE

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Where there is no data:

Participatory approaches to veterinary epidemiology in pastoral areas of the Horn of Africa

Andy Catley and
Jeffrey Mariner

May 2002

Acknowledgements

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Contents

1. Introduction

For many years, veterinary services in pastoral areas of the Horn of Africa have been in decline. Restructuring of State Veterinary Services (SVS) has been associated with a virtual collapse of basic animal health care and reporting systems. Attempts to privatise veterinary services have been focussed in 'high potential' farming areas or urban centres. Typically, veterinary privatisation programmes have regarded pastoral areas as unable to support private veterinary clinics or pharmacies, although data to substantiate this view is rarely available. Furthermore, relatively few veterinary graduates originate from pastoral areas and veterinarians are often unwilling to accept the less comfortable living conditions away from the main towns (RWA International/Vetwork UK, 2000).

Increasingly, countries wishing to export livestock are required to demonstrate their animal health status. International standards are set by the Office International des Epizooties (OIE) according to the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) of the World Trade Organisation. To comply with the SPS Agreement, a SVS in a developing country must be able to:

- demonstrate national animal health status by means of scientifically-based surveillance efforts;
- draft regulations based on international standards and develop transparent means to divulge them to the public and international community;
- develop risk analysis capabilities;
- recognise and apply the concept of regionalisation;
- develop control, inspection and approval methods that are transparent, non-discriminatory and scientifically-based (Zepeda, 2000).

For many developing countries, these conditions are major challenges. In particular, the special constraints and limited private or public sector veterinary activities in pastoral areas of the Horn of Africa raise profound problems for countries wishing to enter international livestock markets. From a livelihoods perspective, although pastoralists are becoming more commercially minded, livestock markets are still poorly developed in pastoral areas. Livestock diseases such as foot and mouth disease (FMD) and

contagious bovine pleuropneumonia (CBPP) are thought to be endemic, but there is very little 'hard data' available to inform the development of realistic and affordable disease control strategies.

Despite these problems, veterinarians with experience of pastoral communities have noted a wealth of local livestock knowledge, including good diagnostic skills and awareness of modes of disease transmission. Consequently, a key question for veterinarians is how to make best use of this knowledge and develop appropriate livestock disease surveillance systems in pastoral areas. Ideally, such systems should be action-orientated and result in disease control activities that are designed in partnership with livestock keepers.

This paper provides an overview of recent experiences with the use of participatory approaches and methods to understand livestock diseases in pastoral areas. These experiences include the emergence of participatory epidemiology as a distinct branch of veterinary epidemiology, and most recently, studies on the validity and reliability of participatory methods. The paper discusses how participatory assessment can compliment conventional systems of veterinary inquiry and outlines plans to integrate participatory epidemiology into national veterinary epidemiology units.

2. Why a participatory approach to veterinary epidemiology in pastoral areas?

2.1 Indigenous knowledge as epidemiological intelligence

Pastoralists have a rich and detailed knowledge about significant health problems affecting their animals (see box 1). This indigenous veterinary knowledge is based on oral tradition, shared information and the life experience of individuals. The core of this knowledge is clinical, pathological and epidemiological[1] observations that serve to organise disease information into recognisable entities described by a traditional terminology. This information is valuable intelligence for veterinary epidemiologists. Each term has a consensus definition that can be explained during participatory enquiry (for example, see Figure 2 p.10). From an epidemiological perspective, these definitions can serve as 'case definitions'. In pastoral and agro-pastoral societies regular, even daily meetings are held to discuss the health of livestock and decide how they should be managed. In part, decisions on livestock management are based on a constant reassessment of the animal health situation, including exposure to parasites on pasture, or proximity to diseased herds or wildlife. Livestock topics, including animal health, form a substantial part of everyday conversation in such communities.

2.2 Constraints facing conventional epidemiological approaches

National veterinary epidemiology units and researchers working in pastoral areas have usually tried to apply conventional epidemiological methods. Typically, quantitative and data driven approaches are attempted but prove to be untenable in large pastoral areas with relatively small and mobile human populations, limited modern infrastructure and frequently, insecurity. Other problems include lack of baseline data to inform random sampling procedures and the difficulty of following herds during longitudinal studies. Rather than asking the question, '*What is*

1. Veterinary epidemiology is the study of disease in animal populations and factors that determine its occurrence. Therefore, epidemiological observations relate to populations. Clinical observations are visible signs of disease in a live animal or signs detected using basic instruments such as a thermometer or stethoscope. Pathological observations usually relate to dead animals (post mortem examinations). Unlike epidemiological observations, clinical and pathological observations can be seen in individual animals.

Box 1. The indigenous knowledge of pastoralists in the Horn of Africa: some views of veterinarians

Working in the Somaliland Protectorate in the 1950s, the veterinarian Robert Mares noted that,

"*... it is surprising to find that the (Somali) nomad recognises the flies that spread trypanosomiasis; that he has a good idea of the infective nature of disease and knows that cattle with rinderpest are dangerous to other cattle; and that he has learnt logical and effective, though very primitive, methods of immunisation*" (Mares, 1954).

Some years later, a British veterinary team working in northern Somalia between 1969 and 1972 also realised that herders possessed useful knowledge related to animal health. For example, when discussing trypanosomiasis in camels it was concluded that despite the team's laboratory facilities,

"*...the best diagnostic tool was probably the camel owners own opinion. This is not something to be dismissed lightly because a camel owner knows his animals and the disease intimately*" (Edelsten, 1995).

Further south, it was the Maasai who suggested that wildebeest were associated with the epidemiology of malignant catarrhal fever. In Maa, the words for wildebeest and MCF are the same (Barnard et al., 1994). The Maasai recognised that the wildebeest calving season was a high-risk period for the transmission of MCF and protected their cattle by avoiding wildebeest during the calving season.

Also working with the Maasai, Plowright suggested that,

'*... nomadic cattle owners could give uninitiated professionals a firm diagnosis of rinderpest and even husbanded mild strains purposely to immunise their young stock*" (Plowright, 1998).

the minimum data required to take action?' epidemiologists have tried to design studies and data collection activities according to the relatively easy operational environment of settled farming communities.

In addition, most animal health data collection systems or research projects have lacked commitment to feedback information to pastoral communities. Not surprisingly, this creates frustration among herders and unwillingness to collaborate with future efforts. In contrast to reports of pastoralists' indigenous veterinary knowledge, there are also frequent accounts of herders' lack of co-operation with animal health surveys and attempts to mislead researchers. These constraints are sometimes compounded by the veterinary profession's bias against pastoralists. Veterinarians undergo a lengthy university education that tends to reinforce attitudes of superiority in animal health matters. Pastoral production systems are commonly regarded as backward and inefficient and because pastoralists have limited access to formal education, their knowledge is undervalued.

3. Participatory epidemiology

3.1 Principles

The approach and methods of participatory epidemiology are drawn from rapid rural appraisal. Key features are summarised in Box 2.

Although participatory epidemiology is essentially a qualitative process, it is useful to note that the core conventional veterinary diagnostic methods are also qualitative. Procedures such as history taking, clinical examinations and post mortem examinations are common diagnostic tasks performed by veterinarians, and are largely subjective. The process of triangulation, central to participatory inquiry, is performed routinely by veterinary diagnosticians as they mentally combine and cross-check information provided by livestock keepers with observations of the environment and animals in question. Even laboratory examination and the interpretation of laboratory results involves subjective interpretation by veterinarians.

With these issues in mind, participatory epidemiology can be viewed as a natural extension of the veterinary diagnostic process. Specific participatory methods that relate to a conventional diagnostic approach are illustrated in Figure 1.

In our view, a veterinarian wishing to use participatory epidemiology requires three main attributes:

- The right attitude – including a willingness to listen and learn from livestock keepers, and patience. While local knowledge and skills should be respected, gaps in knowledge and apparent anomalies compared with professional views need to be explored.
- Good background knowledge – including a thorough and critical understanding of the scientific and social literature for the areas and diseases in question. This awareness of secondary data informs the probing and triangulation processes.
- Willingness to learn, practise and apply participatory methods – including adaptation of methods according to the field situation.

Box 2. The principles of participatory epidemiology

Attitudes and behaviour

Practitioners are required to assess their own professional and cultural biases. Essentially, they need to be genuinely willing to learn from local people, not lecture to them but actively and patiently listen. This requires respect for local knowledge and culture.

Combined methods and triangulation

Participatory epidemiology uses a wide range of interviewing, scoring, ranking, and visualisation methods. Of these, interviews are the most important group of methods because they are used alone but also complement and formed the basis for other methods. The visualisation methods include mapping (natural resource maps, social maps, service maps), seasonal calendars, time-lines, transects, Venn diagrams, flow diagrams. Scoring methods include matrix scoring and proportional piling. These methods are combined with conventional veterinary investigation and epidemiological tools.

The use of key informants

Although pastoral communities generally are recognised as knowledgeable about animal health matters, certain people are known to possess special livestock knowledge and skills. These local experts are important key informants for participatory epidemiologists.

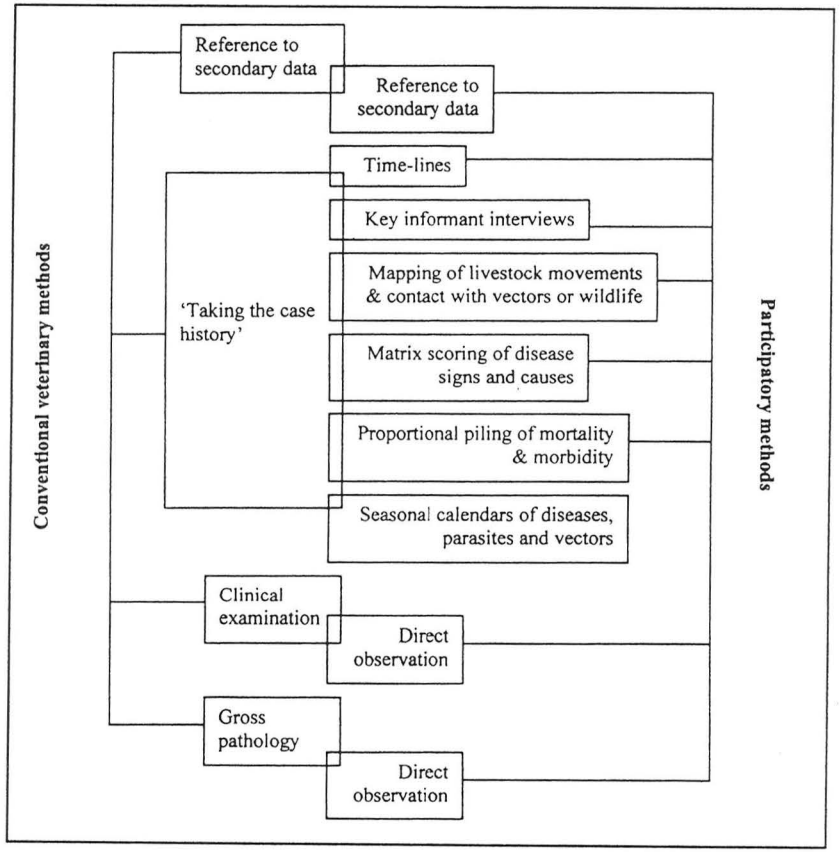
Action-orientated

Participatory epidemiology aims to generate information that can be verified with communities and leads to agreement on appropriate action. Initially, the aims of a particular study or investigation should be clearly explained to avoid raising expectations. In some situations, further laboratory results will be required and the mechanism for transferring these results back to the community should be defined.

Methodological flexibility, adaptation and development

Participatory epidemiology is a relatively new branch of epidemiology that is still developing. The approach is based on qualitative inquiry and complements the quantitative nature of standard veterinary investigation procedures such as owner interviews, clinical observation and gross pathology. According to the needs of a given community or organisation, participatory epidemiology can also combine the benefits of participatory approaches and methods with quantitative inquiry. Methodological adaptation is encouraged.

Figure 1. Qualitiative methods in veterinary investigation and participatory inquiry



3.2 Reliability and validity

Although professionals in a wide range of disciplines regularly use participatory approaches, veterinarians have been slow to adopt participatory ways of working. In 1999, the Participatory Approaches to Veterinary Epidemiology (PAVE) Project at IIED conducted a survey of veterinarians working in Africa in order to assess understanding and uses of participatory appraisal (PA) (Catley 2000a).[2] This survey indicated that although veterinarians recognised the value of PA for addressing local concerns

2. The term 'participatory appraisal' is used to encompass approaches and methods drawn from Rapid Rural Appraisal (RRA), Participatory Rural Appraisal (PRA) and Participatory Learning and Action (PLA).

and building relationships with livestock keepers, its qualitative nature of inquiry was perceived as a key constraint. Many veterinarians considered qualitative data to be unreliable, invalid and difficult to incorporate into official disease information systems.

In response to these concerns, the PAVE Project reviewed the objectives and methods of quantitative verses qualitative inquiry from a veterinary perspective, and with a focus on conditions in pastoral areas (Catley, 1999). One section of the review criticised the use of questionnaires in animal health surveys, and noted the scarcity of surveys following best practise guidelines. Although commonly perceived by veterinarians to be 'objective' and 'quantitative', questionnaires were often poorly designed and administered with no consideration of enumerator bias or non-sampling areas. The review also provided two options for assessing the value of PA in veterinary epidemiology. The first option highlighted the need to understand the aims and scope of qualitative investigation and, in particular, the context-specific and inductive nature of this approach.[3] Therefore, it was suggested that a 12-point system of assessing trustworthiness, as proposed for Participatory Learning and Action (Pretty et al., 1995), could also be applied to qualitative veterinary inquiry.

The second approach to understanding reliability and validity of PA focussed on objective measures.

The PAVE Project implemented a series of livestock disease investigations in pastoral areas of the Horn of Africa designed to compare data derived from participatory and objective assessment of specific livestock diseases. Research was conducted in three study sites (Table 1) and livestock keepers identified the diseases as priorities. Their requests for advice and investigation were channelled through field-level NGOs or other agencies to the PAVE Project. The basic methodology for these investigations involved a comparison of livestock keepers' perceptions with the results of conventional veterinary inquiry. Also, 'standardised' PA tools were developed and repeated in order to assess reliability.

The standardised PA methods included matrix scoring, seasonal calendars and proportional piling. By 'standardised', we mean that for each study

3. An inductive approach is open ended. Answers to one set of questions induce new questions.

Table 1. Reliability and validity of PA methods for veterinary epidemiology: summary of field studies conducted by the PAVE Project, 1999-2001

Date	Description	Main partners
May 1999 to August 2000	Studies on *liei*/chronic wasting disease in cattle Western Upper Nile, Upper Nile and Bahr el Ghazal, with Nuer and Dinka communities, southern Sudan. Local characterisation of diseases and comparison with veterinary opinion, pathological examination and laboratory investigation.	• Operation Lifeline Sudan (Southern Sector) Livestock Programme • VSF Switzerland • Save the Children (UK)
November 2000	Studies on gandi/bovine trypanosomiasis with Orma communities in Tana River District, Kenya. Local characterisation, incidence estimates and preferences for control methods.	• Kenya Trypanosomiasis Research Institute (KETRI) • Catholic Relief Services • Diocese of Malindi
April to August, 2001 (and ongoing)	Studies on suspected chronic manifestations of foot and mouth disease in cattle with Maasai and Wasukuma communities, Morogoro, Mwanza and Shinyanga regions, Tanzania.	• Faculty of Veterinary Medicine • Sokoine University of Agriculture • Mwanza Veterinary Investigation Centre

the diseases, indicators, seasons and scoring systems were kept constant for each method, thereby enabling comparison of results from different informants. Through the use of scoring-type procedures in these methods,[4] numerical data arose directly from informants at an early stage in the method. This data was summarised using statistical methods, as outlined in the examples in Figures 2 to 4. Although these methods were standardised, the methods also included the use of open and probing questions to cross check and follow up interesting responses. Also, other PA methods such as semi-structured interviews and mapping were used in an ad hoc manner as part of the triangulation process.

4. For example, the division of piles of counters (seeds or stones) against disease-signs, disease-causes, disease incidence, seasons or other indicators.

Figure 2. Example of a summarised matrix scoring of disease-signs versus diseases in Nuer areas of southern Sudan

Disease-signs	Diseases				
	Liei Mixed parasitism	*Dat* FMD	*Maguar* Parasitic gastroenteritis	*Doop* CBPP	*Macueny* Fascioliasis
Chronic weight loss (W=0.51***)	10 (6.0-16)	1 (0-2.5)	3 (0-3.0)	1 (0-2.5)	1 (0-2.0)
Animal seeks shade (W=0.88***)	0 (0)	20 (17-20)	0 (0)	0 (0-3.0)	0 (0)
Diarrhoea (W=0.52***)	4 (0-8.5)	0 (0)	11 (6.0-16)	0(0)	4 (0-7.5)
Reduced milk yield (W=0.51***)	2 (0-4.0)	13 (7.0-20)	3 (0-9.0)	1 (0-2.5)	0 (0-1.0)
Coughing (W=0.76***)	0 (0-0.5)	0 (0-0.5)	0 (0-2.0)	19 (16.5-20)	0 (0-0.5)
Reduced appetite (W=0.54***)	0 (0)	13 (7.0-20)	0 (0)	5 (0-10)	0 (0)
Loss of tail hair (W=0.89***)	20 (16.5-20)	0 (0)	0 (0-3.5)	0 (0)	0 (0)
Tearing (W=0.28*)	6 (3.0-13)	2 (0-6.5)	4 (0-8.5)	0 (0-1.5)	3 (0-8.0)
Salivation (W=0.50***)	2 (0-3.0)	14 (7.0-20)	3 (0-6.5)	1 (0-2.0)	0 (0-0.5)

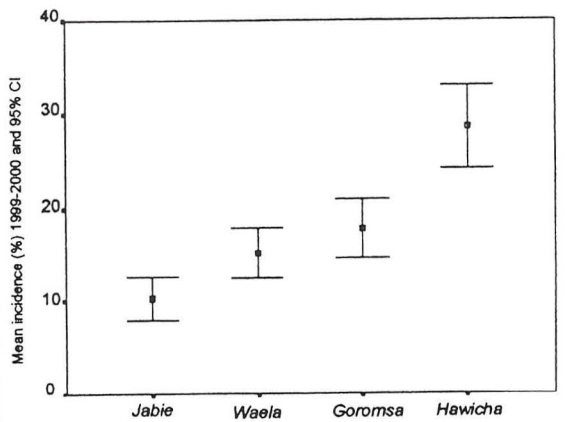
This method was used to answer the question, 'How do people diagnose the disease called liei relative to other diseases?' The method includes 2 'control diseases' called dat and doop, that had already been diagnosed by vets as FMD and CBPP respectively. These controls were used to check that informants understood the scoring procedure.

Number of informant groups = 12, group sizes varying from 4 to 11 individuals. The black dots represent the scores (number of seeds) that were used during the matrix scoring. Medians are presented (95% confidence limits). A high number of dots indicates a relatively strong association between a sign and a disease whereas a low number of dots indicates a weak association.

W = Kendall's Coefficient of Concordance (*p<0.05; **p<0.01; ***p<0.001). This is measure of the level of agreement between the 12 informant groups for each disease-sign. High agreement between groups indicates good reliability of the method.

Source: Catley et al., 2001

Figure 3. Estimated incidence of gandi/trypanosomiasis by age group in Orma cattle, Tana River, Kenya



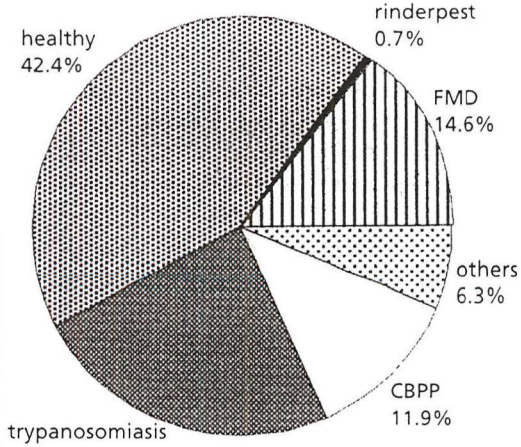
This graph was derived from the results of proportional piling of important cattle diseases during 1999-2000, by cattle age group, with 50 informants. Mean incidence and 95% confidence intervals are illustrated.

Orma classification of cattle age groups was used as follows:
Jabie 0-2 years
Waela . 2-3 years
Goromsa 3-4 years
Hawicha > 4 years

The increasing pattern of disease incidence with age fits conventional veterinary thinking.

Source: Catley et al., 2001

Figure 4. Summarised estimates of disease incidence in Tana River, Kenya



This pie chart is based on results from the same proportional piling method used in Figure 3. The method required informants to consider each age group of cattle in turn, and divide stones to show the relative incidence of diseases. The pie chart summarises the results for all age groups of cattle.

To some extent, this information can be cross checked against conventional veterinary investigations methods, such as laboratory detection of disease agents or antibody.

Source: Catley et al., 2001

Inherent in the standardised PA methods were procedures intended to improve quality of data. For example, methods required informants to compare the features of numerous diseases, not only the disease of particular concern. This approach was used to prevent exaggerated responses to mortality and morbidity estimates (Figure 3). Also, matrix scoring methods to visualise and score disease signs and causes included 'control diseases' (Figure 2). These diseases were already well known by the researchers and local disease names were associated with specific western disease names. Consequently, the control diseases were used to determine whether informants understood the matrix scoring procedure.

In the case of the studies in southern Sudan and Kenya,[5] research findings showed that PA methods produced reliable and valid information when used with pastoral informants. Interestingly, the research also highlighted the limitations of the comparative participatory-verses-objective methodology. In theory, the validity of pastoralists' diagnosis of disease, as expressed in local languages, and their perceptions of proportions of animals affected can be cross-checked using modern veterinary techniques to give the 'scientific' or 'objective' answer. These modern techniques include laboratory tests that detect either a causal organism (such as a virus, bacteria or parasite) or evidence of ongoing or previous infection (by detection of antibody). However, there are numerous constraints when considering this approach to validation.

For example, the value of a laboratory test is determined by the sensitivity and specificity of the test. Sensitivity is the ability of the test to detect infection and not miss those animals that are infected (i.e. 'positive' cases of infection). In a herd of 100 cattle all infected with parasite X, a highly sensitive test might detect parasite X in 98 cattle and miss 2 cases. Such a test would be described as 98% sensitive and the number of false negatives is low (only 2%). Specificity is the ability of the test correctly to identify non-diseased animals and relates to the ability of a test to identify accurately the correct disease agent. 3 In a herd of 100 cattle not infected with parasite X, a highly specific test might classify 1 cow as positive and correctly identify the other 99 as negative. In this case, the test would be said to be 99% specific and the rate of false positives would be 1%.

5. Research in Tanzania was still ongoing during the preparation of this paper.

In the PAVE research, there were important limitations in the diagnostic tests available. For trypanosomiasis, the best diagnostic test for field investigations was only approximately 50% sensitive, meaning that 50% of positive, infected animals are missed by the test. For another important disease, fascioliasis (liver flukes), laboratory tests were only approximately 30% sensitive (i.e. 70% of positive cases were missed by the test). These features of diagnostic tests meant that a 'true' estimate of disease presence was difficult to obtain. In cases where pastoralists cannot make a firm diagnosis of a disease, or appear to group a collection of disease signs into a vague syndrome, state-of-the-art diagnostic tests developed by veterinarians are not necessarily more reliable than herders' opinion.

3.3 Uses of participatory methods in veterinary epidemiology

Different types of veterinary worker now use participatory approaches and methods for a wide variety of reasons. Some of the most common uses in pastoral areas are outlined below and specific methods are described in RRA Notes No. 20 (1994), Catley (1999) and Mariner (2001).

Animal health surveys, needs assessments and action plans

Probably the most common use of PA has been during animal health surveys conducted by NGOs as part of community-based animal health projects. ITDG began using PA-type methods in 1986 when a base-line survey in Kamujini, Kenya included the use of methods such as wealth ranking, progeny histories, ethnoveterinary question lists and informal interviews. Over the next few years other methods such as transect walks, mapping, and ranking exercises were also used. Maranga (1992) described how ITDG used wealth ranking, disease ranking and success ranking in projects in Zimbabwe and Kenya. In these projects, PA was used during the initial needs assessment or feasibility surveys and was intended to provide a rapid overview of key issues, relationships and services in communities, and locally-prioritised livestock diseases. By the late 1990s, numerous NGOs in Kenya, Uganda, Tanzania, Ethiopia and Somalia were using PA routinely in animal health projects. Similarly, the use of PA was central to the community-based programmes established by the Operation Lifeline Sudan Livestock Programme (Leyland, 1996) and the Pan African Rinderpest Campaign (Mariner, 1996).

Monitoring, impact assessment and evaluation

Although PA has been widely used during the initial stages of project implementation, its use in project monitoring and evaluation has been less extensive. In pastoral areas of the Horn, ActionAid-Somaliland used PA methods as part of a participatory and soft systems approach in programme reviews in 1994 and 1998 (ActionAid-Somaliland, 1994, 1998). A review of Oxfam UK/Ireland's community-based animal health project in Karamoja, Uganda (Catley, 1997) also used PA methods and scoring tools were incorporated into a questionnaire-based assessment of Oxfam UK/Ireland's project in Wajir, Kenya in 1998 (Odhiambo et al., 1998). Participatory impact assessment approaches and methods were also developed and tested by VSF-Belgium and VSF-Switzerland in southern Sudan (Catley, 2000b).

Ethnoveterinary studies

Specific studies to collect and document indigenous veterinary knowledge have, to varying degrees, used PA methods. In comparison with the various PA methods used in the development of community-based animal health services, ethnoveterinary studies have tended to use a narrow range of interviewing methods. Often these methods have been more formal than informal, with questionnaires and structured owner interviews forming the basis for data collection. Working with ITDG in Kenya, Wanyama (1997) also used various ranking and scoring methods in a more participatory ethnoveterinary research approach.

Participatory disease searching

The later stages of animal disease eradication programmes require the final remnants of disease to be sought out and removed from a population. Participatory disease searching (PDS) evolved in the Pan African Rinderpest Campaign and used pastoralists' knowledge of rinderpest to locate disease outbreaks in remote areas. The approach was based on participatory methods such as semi-structured interviews and in particular, the use of probing questions to delve deeply into local knowledge about rinderpest. Also, mapping and time-lines were used to build an historical picture of rinderpest outbreaks in a given area (Mariner and Flanagan, 1996; Mariner, 2000). These methods were used in combination with conventional veterinary investigation methods such as clinical and laboratory examination. When the searching team actually located a rinderpest outbreak, the involvement of livestock keepers during the disease search meant that discussion on the action required to control the outbreak was easily initiated. At the time of writing, PDS was likely to become increasing important as Horn of Africa countries sought to identify remaining foci of rinderpest in remote areas.

Participatory research

The research activities conducted by the PAVE Project and outlined in Table 1 can be described as participatory research. In each research location, the diseases under investigation were identified by livestock keepers as priorities and they requested local veterinary workers to advise them regarding disease control or treatment. In each case, participatory diagnosis followed by discussion on appropriate control measures was the main field-level activity. In southern Sudan, research findings were presented to the Operation Lifeline Sudan Livestock Programme and refresher training for animal health workers was planned. A further proposal was also formulated to involve livestock keepers in assessing various treatment options for the disease in question. In Kenya, research findings were presented to community representatives and an action plan for further work was agreed with the KETRI (Catley et al., 2002).

Disease modelling

Computer simulations of disease transmission can assist epidemiologists to develop disease control strategies. By understanding the way a disease moves between animals in a population, appropriate methods to interrupt disease transmission can be identified. Disease modelling often makes use of expert opinion provided by technicians to estimate parameter values where hard data is limited or too expensive to collect. A common criticism of disease models has been that the people actually developing the model or providing the expert opinion are isolated from the realities on the ground. Frequently, this means that the validity of the available field data used to run the model is not fully understood and therefore, inappropriate conclusions are drawn. Similarly, recommendations for disease control should be informed by knowledge of local preferences for different control options.

In southern Sudan, participatory methods were used to generate basic data for a rinderpest disease model (Mariner, 2001). The key parameter for developing the model was a measure of rinderpest transmissibility,

called the basic reproductive number (R_0)[6]. The basic reproductive number is both a characteristic of the infectious agent and the structure of the population harbouring the agent. Constructing a model requires an understanding of herd age structure and mortality rates due to rinderpest in different age groups of cattle. Participatory methods such as proportional piling can be used to produce this kind of data. Development of the model also requires understanding of livestock population structure and the degree of contact between herds. This herd-to-herd contact is directly related to spatial, temporal and social relationships between adjacent communities. Participatory methods are ideal for studying linkages between communities. Methods such as mapping can be used to quantify contact between communities and herds as well as seasonal variations in contact levels. Participatory methods are ideal for studying community structure. Methods such as mapping can be used to quantify contact between communities and herds as well as seasonal variations in contact levels.

After R_0 had been estimated, a model was developed to show the effect of vaccination on rinderpest presence in a given population. This model was used to predict the level of vaccination coverage required for stopping transmission of rinderpest within and between herds in southern Sudan. Although work is still in progress, this 'participatory modelling' approach combines herders' expert opinions with sophisticated mathematics and conventional diagnosis to develop better disease control strategies. Furthermore, disease models can be developed with relatively small data sets provided that the reliability of the data is known.

3.4 Problems with participatory approaches

In common with the use of participatory approaches and methods by workers in other technical sectors, veterinary uses of PA are affected by various difficulties. For example, the survey of veterinarians working in Africa conducted in 1999 showed that the number of vets using PA exceeded the number of vets who had received training in PA (Catley, 2000a). Furthermore, a commonly cited complaint was 'negative attitudes among colleagues and superiors' and insufficient training courses and manuals. When people were able to attend training courses, the quality of training was extremely variable. For example, when conducting refresher training in participatory methods for researchers from KETRI, one of the authors asked participants to describe the key experiences from their previous training in PRA. A typical response was 'Its really just like a questionnaire survey'. This confusion over PA is very apparent in the increasing number of veterinary research papers and proposals originating from Africa and claiming to use participatory approaches and methods. In our experience, it is rare to find a report or proposal that uses methods other than structured interviews or, proposes training in PA for researchers followed by methodology development and testing in the field.

Although not yet a serious problem, we're also aware of the dangers of developing standardised PA methods such as those used by the PAVE Project. At worse, this approach could encourage a 'fixation with methods' as described by workers in other sectors (e.g. Guèye, 1999). However, while PAVE standardised certain aspects of methods such a matrix scoring, a crucial part of the method was 'interviewing the matrix', cross checking the scores and asking open and probing questions to prompt further discussion. A problem arises because while some researchers readily grasped the concept of open-ended inquiry and enjoyed asking further questions, other researchers focussed solely on recording the scores of the matrix and regarded this as the main output of the method. This experience has much in common with reports from other workers viz. attitude, behaviour and a certain mindset are central to effective participatory inquiry.

6. R_0 is defined as the number of secondary cases that arise from one infectious index case in a totally susceptible population. For example, a disease agent of low transmissibility may have R_0 = 0.8 and such an agent would not be maintained in a population. A more transmissible disease agent may have R_0=10. This agent would spread quickly through a susceptible population.

4. Future directions

Although participatory epidemiology is used by only a handful of veterinarians in Africa, there are opportunities to promote its wider development and application. In particular, the Pan African Programme for the Control of Epizootics (PACE) covers 32 countries and aims to eradicate rinderpest from Africa, improve control of other epizootics and develop the capacity of national veterinary epidemiology units. Regarding rinderpest eradication and epizootic disease control, these diseases are particularly difficult to control in pastoral and agropastoral herds. When combined with conventional veterinary diagnosis, participatory approaches can assist veterinarians to gain a better understanding of disease dynamics in pastoral areas and simultaneously, develop better working relationships with pastoral communities.

Within the PACE, the Community-based Animal Health and Participatory Epidemiology (CAPE) Unit is planning to encourage key regional and national-level veterinary agencies to learn more about participatory approaches in pastoral areas of the Greater Horn of Africa region. Some of the main activities of the CAPE Unit are as follows.

- Dissemination of experiences in participatory epidemiology via academic and informal publications, and workshops.
- Training in participatory epidemiology for senior-level epidemiologists in government veterinary services, veterinary schools and research institutes, followed by application in the field e.g. as a component of disease surveillance systems and research in pastoral areas.
- Encourage veterinary epidemiologists to become involved in the design, monitoring and impact assessment of community-based animal health programmes in pastoral areas; create links between government epidemiologists and NGO programmes.
- With veterinary schools, explore options for incorporating community-based animal health and participatory epidemiology into undergraduate or postgraduate curricula; support postgraduates to conduct participatory research in pastoral areas.

Ultimately, these activities aim to improve animal health information flow both from and to pastoral communities, enable wider application of community-based animal health services and reduce the isolation of pastoralists from national and international livestock markets.

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The Drylands Programme aims to contribute towards more effective and equitable management of natural resources in semi-arid Africa. It has a particular focus on decentralised management of natural resources, pastoral development, land tenure and resource access. Key objectives of the programme are to strengthen local capacity for sustainable resource management, by building effective and accountable local institutions; identify and promote national policies that legitimise and enable local-level decision making and authority; argue and lobby for global policies and institutions that support the development needs and priorities of dryland peoples.

It does this through four main activities: collaborative research with a range of partners in dryland African countries, training in participatory methods, policy advice to donor organisations, and information networking promoting links and learning between French and English-speaking Africa.

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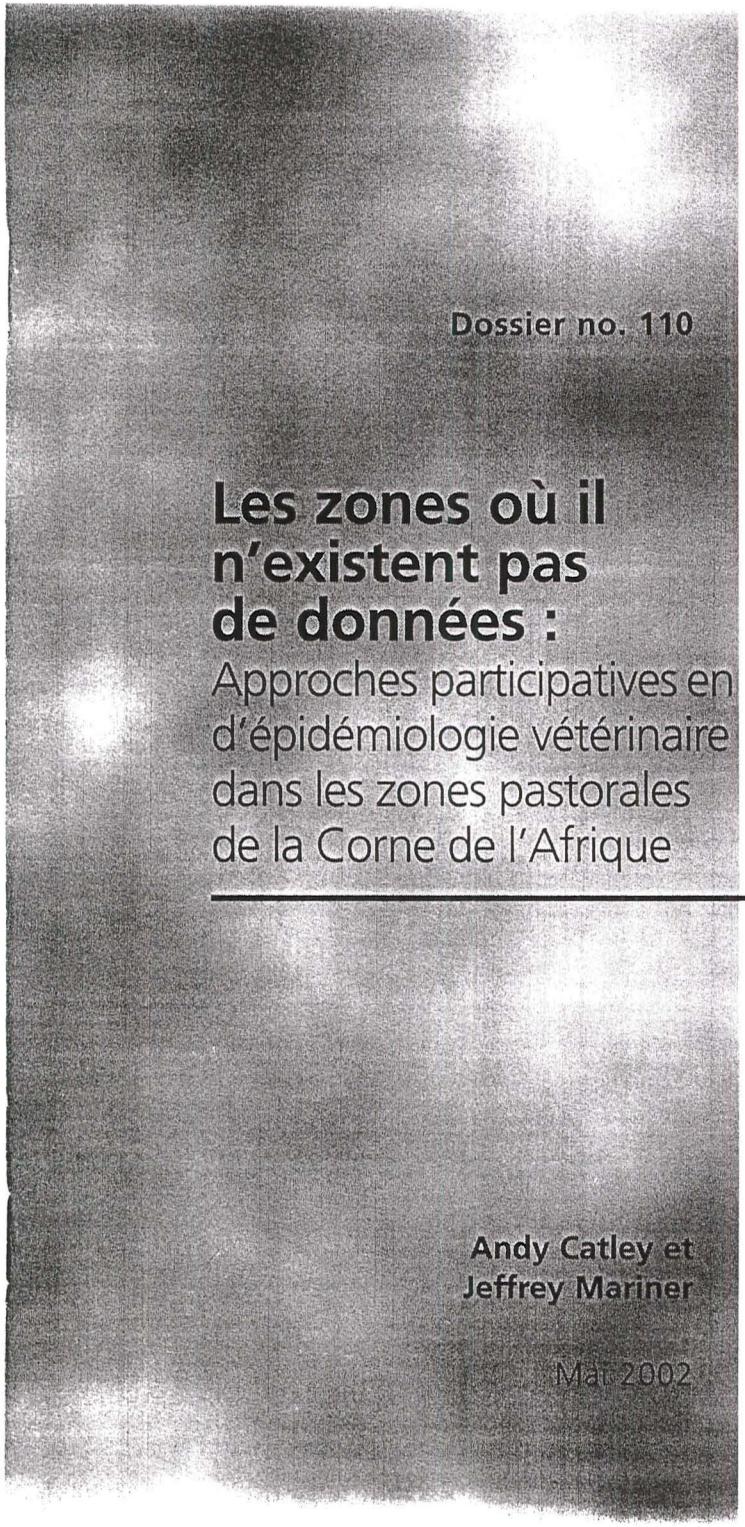

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Dossier no. 110

Les zones où il n'existent pas de données :

Approches participatives en d'épidémiologie vétérinaire dans les zones pastorales de la Corne de l'Afrique

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Table des matières

1. Introduction

Les services vétérinaires des zones pastorales de la Corne de l'Afrique sont en déclin depuis de nombreuses années. La restructuration des services vétérinaires de l'Etat est associée à un effondrement virtuel des soins de santé animale de base et des systèmes d'établissement des rapports. Les tentatives de privatisation des services vétérinaires se concentrent dans les zones de production agricole à "fortes potentialités" ou dans les centres urbains. Fondamentalement, les programmes de privatisation des services vétérinaires considèrent que les zones pastorales ne sont pas en mesure de gérer des cliniques vétérinaires ou des pharmacies privées, même s'il y a peu de données permettant d'étayer ce point de vue. En outre, le nombre de diplômés en médecine vétérinaire, originaires des zones pastorales, est relativement faible et les vétérinaires sont souvent pas disposés à accepter des conditions de vie moins confortables, loin des grandes villes (RWA International/Vetwork UK, 2000).

De plus en plus, les pays qui souhaitent exporter le bétail sont tenus de prouver la bonne santé de leur bétail. Les normes internationales sont fixées par l'Office International des Epizooties (OIE) conformément à l'Accord sur l'Application des mesures sanitaires et phytosanitaires (Accord SPS) de l'Organisation Mondiale du Commerce. Pour se conformer à l'Accord SPS, les services vétérinaires d'un pays développement doivent être en mesure:

- de prouver que son bétail est en bonne santé grâce à des efforts de surveillance basée sur la science;
- d'élaborer de règlements basés sur les normes internationales et mettre au point des moyens transparents pour les diffuser auprès du public et de la communauté internationale;
- de développer des capacités d'analyse des risques;
- de reconnaître et d'appliquer le concept de régionalisation;
- de mettre au point des méthodes de contrôle, d'inspection et d'approbation, transparentes, non-discriminatoires et scientifiques (Zepeda, 2000).

Ces conditions représentent des défis majeurs pour de nombreux pays africains. En particulier, les contraintes spécifiques et le nombre peu élevé

d'activités vétérinaires menées dans le secteur privé et public dans les zones pastorales de la Corne de l'Afrique posent de sérieux problèmes aux pays qui désirent pénétrer le marché du bétail. En ce qui concerne les conditions de vie, les marchés du bétail sont encore peu développés dans les zones pastorales, même si les pasteurs commencent à s'intéresser de plus en plus au commerce. On pense que les maladies animales telles que la fièvre aphteuse et la pleuropneumonie bovine contagieuse sont endémiques, mais il existe très peu de données pouvant être utilisées pour l'élaboration de stratégies réalistes et abordables de lutte contre les maladies.

Malgré ces problèmes, les vétérinaires qui ont une expérience en matière d'intervention dans les communautés pastorales ont constaté qu'il y a connaissances locales riches dans le domaine animal, notamment de bonnes méthodes de diagnostic et une connaissance du mode de transmission des maladies. Pour les vétérinaires, la question essentielle est donc de savoir comment exploiter au mieux ces connaissances et de mettre en place des systèmes appropriés de surveillance des maladies animales dans les zones pastorales. Idéalement, ces systèmes devraient être orientés vers l'action et se traduire par des activités de lutte contre les maladies, conçues en collaboration avec les éleveurs.

Le présent article donne un aperçu des expériences récentes en matière d'utilisation des approches et méthodes participatives en vue de comprendre les maladies animales dans les zones pastorales. Parmi ces expériences, on peut citer : l'émergence d'épidémiologie participative en tant que branche distincte de l'épidémiologie vétérinaire et plus récemment, des études sur la validité et la fiabilité des méthodes participatives. L'article examine la façon dont l'évaluation participative peut compléter les systèmes conventionnels d'enquête vétérinaire et présente des plans pour intégrer l'épidémiologie participative dans les services nationaux d'épidémiologie vétérinaires.

2. Pourquoi l'approche participative en matière d'épidémiologie vétérinaire dans les zones pastorales ?

2.1 Savoirs locaux en tant que sources d'informations épidémiologiques

Les pasteurs ont des connaissances riches et précises sur les principaux problèmes de santé qui affectent leurs animaux (voir encadré 1). Ce savoir vétérinaire local est basé sur la tradition orale, l'échange d'informations et le vécu des individus. Cette connaissance est essentiellement basée sur des observations cliniques, pathologiques et épidémiologiques[1] qui servent à organiser les informations relatives aux maladies en entités reconnaissables décrites à l'aide d'une terminologie traditionnelle. Ces éléments constituent des informations très utiles pour les épidémiologistes vétérinaires. A chaque terme correspond une définition consensuelle qui peut être expliquée pendant l'enquête participative (voir la figure 2, présentée et discutée à page 12). D'un point de vue épidémiologique, ces définitions peuvent servir de "définitions de cas". Dans les sociétés pastorales et agropastorales, les populations tiennent des réunions régulières, voire quotidiennes, pour discuter de la santé des troupeaux et décider de la manière de les gérer. Les décisions relatives à la gestion du cheptel sont basées sur des réévaluations constantes de la situation sanitaire des animaux, notamment l'exposition aux parasites dans les pâturages, ou la proximité de troupeaux ou d'espèces sauvages malades. Les thèmes relatifs à l'élevage, dont la santé animale représentent, dans ces communautés, un aspect important des conversations quotidiennes.

2.2 Difficultés rencontrées par les approches conventionnelles en matière d'épidémiologie

Les services nationaux d'épidémiologie vétérinaire et les chercheurs qui travaillent dans les zones pastorales tentent en général d'appliquer les méthodes épidémiologiques conventionnelles. Ils tentent en général d'u-

1. L'épidémiologie vétérinaire est l'étude d'une maladie dans les populations animales et des facteurs qui déterminent son apparition. Par conséquent, les observations épidémiologiques se rapportent aux populations. Les observations cliniques sont des signes visibles de la maladie chez un animal vivant ou des signes détectés à l'aide d'instruments de base tels que le thermomètre ou le stéthoscope. Les observations pathologiques se rapportent généralement aux animaux morts (examen post mortem). Contrairement aux observations épidémiologiques, les observations cliniques et pathologiques peuvent se faire chez les animaux pris individuellement.

Encadré 1. Savoir local des pasteurs de la Corne de l'Afrique : Quelques points de vue de vétérinaires

Travaillant dans le Protectorat du Somaliland dans les années 1950, le vétérinaire Robert Mares a fait le constat suivant :

"*...il est surprenant de voir que le nomade* (Somali) *reconnaît les mouches qui propagent la trypanosomiase ; qu'il connaît bien le caractère infectieux de la maladie et qu'il sait que les troupeaux atteints de peste bovine sont dangereux pour les autres troupeaux; et qu'il a appris des méthodes logiques et efficaces – quoique très rudimentaires-de vaccination* " (Mares, 1954).

Quelques années plus tard, une équipe de vétérinaires britanniques travaillant dans le nord de la Somalie entre 1969 et 1972 s'est également rendu compte que les éleveurs avaient des connaissances intéressantes en matière de santé animale. Par exemple, lors de la discussion sur la trypanosomiase chez les chameaux, on a conclu qu'en dépit de l'équipement de laboratoire que possède l'équipe,

"*..le meilleur outil diagnostic était probablement les points de vue des propriétaires des chameaux. C'est un élément qu'il ne faut pas prendre à la légère parce qu'un propriétaire du chameau connaît très bien ses animaux et la maladie* " (Edelsten, 1995).

Plus au Sud, c'était les Massaïs qui ont indiqué que les gnous avaient un lien avec l'épidémiologie de la fièvre catarrhale maligne. En la langue *Maa*, on utilise le même mot pour désigner le gnou et la maladie (Barnard et al., 1994). Les Massaïs ont constaté que la saison où les gnous mettaient bas étaient une période à haut risque en ce qui concerne la transmission de la fièvre catarrhale maligne et protégeaient leur troupeau en évitant les gnous pendant cette saison.

Par ailleurs, Plowright, qui travaillaient avec les Massaïs, a avancé que :

'...les nomades, propriétaires de troupeaux étaient capables de faire à des professionnels non avertis un diagnostic ferme de la peste bovine et même préparer des souches atténuées cultivées pour vacciner leurs jeunes animaux (Plowright, 1998).

tiliser des approches quantitatives et qualitatives mais ces dernières s'avère peu pratiques dans les vastes zones pastorales, caractérisées par des populations humaines relativement faibles et mobiles, une infrastructure moderne peu développée et une insécurité fréquente. A cela il faut ajouter l'absence de données de base pour soutenir les procédures d'échantillonnage au hasard et la difficulté à suivre les troupeaux pendant les études longitudinales. Au lieu de poser la question " Quelles sont les données minimums nécessaires pour prendre des mesures ?", les épidémiologistes ont essayé de concevoir des études et des activités de collecte de données selon l'environnement de travail relativement commode qu'offrent les communautés d'agriculteurs sédentarisés.

En outre, la plupart des systèmes de collecte de données relatives à la santé animale ou des projets de recherche n'ont pas fait l'effort de retourner les informations aux communautés pastorales. Il n'est pas surprenant que cette situation crée de la frustration chez les pasteurs et provoque de leur part une réticence à collaborer avec les initiatives futures. Contrairement aux informations sur leurs connaissances vétérinaires locales, on fait également état du manque de coopération des pasteurs lors des enquêtes sur la santé animale et de tentatives visant à induire les chercheurs en erreur. Ces difficultés sont parfois aggravées par les préjugés des vétérinaires contre les pasteurs. Les vétérinaires font de longues études universitaires qui ont tendance à renforcer des attitudes de supériorité en matière de santé animale. Les systèmes de production des pasteurs sont souvent considérés comme archaïques et inefficaces et leurs connaissances sont sous-estimées puisqu'ils ont très peu accès à l'éducation formelle.

3. Epidémiologie participative

3.1 Principes

L'approche et les méthodes d'épidémiologie participative s'inspirent de la Méthode Active de la Recherche Participative (MARP) en milieu rural. L'encadré 2 fait la synthèse de leurs principales caractéristiques.

Même si l'épidémiologie participative est un processus essentiellement qualitatif, il convient de noter que les principales méthodes conventionnelles de diagnostic vétérinaire sont aussi qualitatives. Les procédures telles que l'historique, les examens cliniques et les examens post-mortem des sont des tâches qu'effectuent couramment les vétérinaires et sont très subjectives. Le processus de triangulation, qui est très important dans l'enquête participative, est mis régulièrement en œuvre par ceux qui font les diagnostics lorsqu'ils combinent et contre-vérifient les informations fournies par les éleveurs à l'aide des observations de l'environnement et des animaux en question. Même les examens en laboratoire et les interprétations des résultats du laboratoire supposent une interprétation subjective de la part des vétérinaires.

Avec ces questions à l'esprit, l'épidémiologie participative peut être considérée comme un prolongement naturel du processus de diagnostic vétérinaire. La figure 1 illustre les méthodes participatives spécifiques se rapportant à une approche diagnostique conventionnelle.

A notre avis, un vétérinaire qui souhaite utiliser l'épidémiologie participative doit avoir trois qualités principales :

- Avoir l'attitude qu'il faut, dont la volonté d'écouter les éleveurs et apprendre d'eux et la patience. Même si les connaissances et les compétences locales devraient être respectées, il convient d'étudier les déficits de connaissances et les anomalies manifestes par rapport aux points de vue professionnels.

- Avoir un bonne culture générale, notamment une connaissance approfondie et critique des écrits scientifiques et sociaux sur les domaines et

Encadré 2. Principes de l'épidémiologie participative

Attitudes et comportement
Les praticiens doivent évaluer leurs propres préjugés professionnels et culturels. Fondamentalement, ils doivent être réellement disposer à apprendre des populations locales; ils ne doivent pas leur donner des cours; mais les écouter activement et patiemment. Cette attitude nécessite le respect des connaissances et de la culture locale.

Méthodes combinées et triangulation
L'épidémiologie participative utilise un large éventail de méthodes d'interview, de notation, de classement et de visualisation. Parmi ces techniques, les interviews représentent le groupe le plus important parce qu'elles sont utilisées seules; elles sont aussi utilisées en complément à d'autres méthodes et leur servent de base. Les méthodes de visualisation sont : les cartes (cartes des ressources naturelles, cartes sociales, cartes des services), les calendriers saisonniers, les chronogrammes, les transects, les diagrammes de Venn, les organigrammes. Les méthodes de notation comprennent les matrices de notation et l'empilement proportionnel. Ces méthodes sont combinées avec les outils vétérinaires et épidémiologiques conventionnels.

Recours aux informateurs clés
On admet généralement que les communautés ont des connaissances dans le domaine de la santé animale. Toutefois, on sait que certaines personnes ont des connaissances et des compétences particulières dans le domaine de l'élevage. Ces experts locaux sont d'importants informateurs clés pour les épidémiologistes qui adoptent une approche participative.

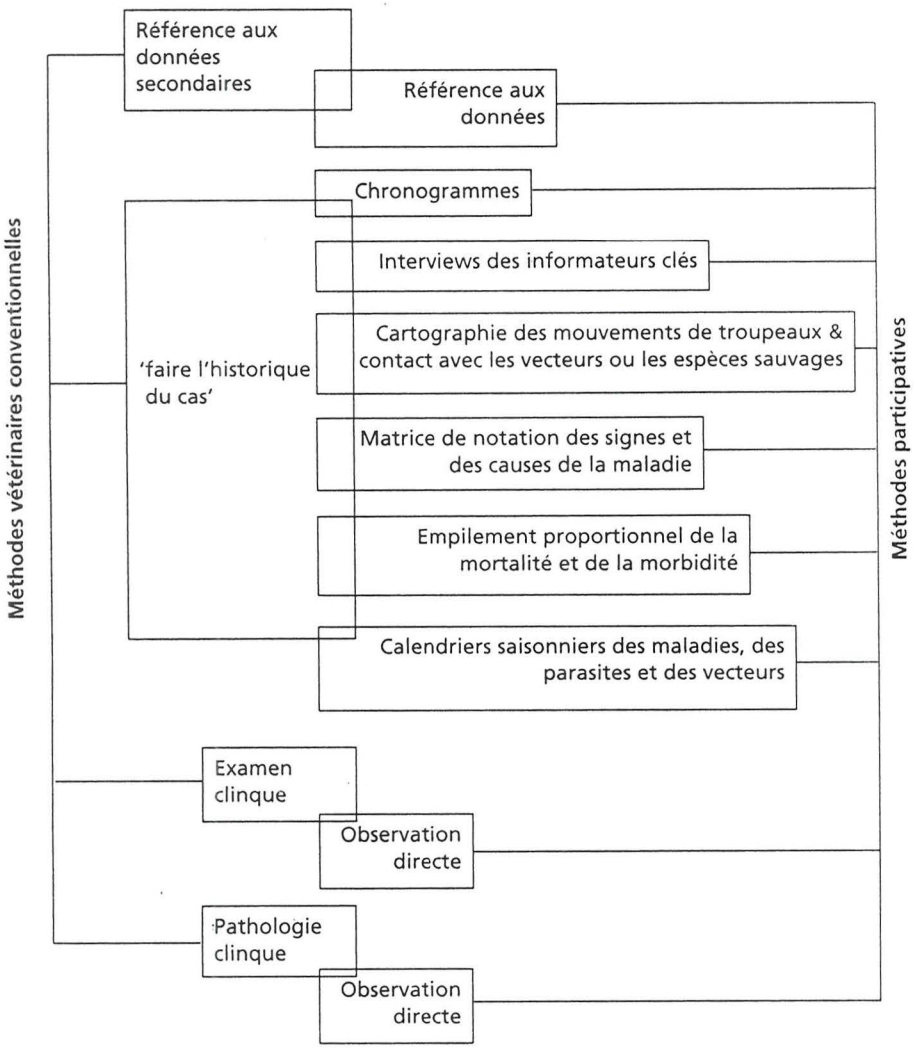
Orientation vers l'action
L'épidémiologie participative a pour objet de générer des informations qui peuvent être vérifiées auprès des communautés et débouche sur un accord relativement aux mesures appropriées à prendre. Les objectifs d'une étude ou d'une enquête particulière devraient être clairement expliqués au départ pour éviter de susciter des attentes. Dans certaines situations, des résultats de laboratoire supplémentaires seront nécessaires et un mécanisme permettant d'informer en retour la communauté de ces résultats devrait être défini.

Flexibilité, adaptation et développement méthodologique
L'épidémiologie participative est une branche relativement nouvelle qui se développe toujours. L'approche est basée sur l'enquête qualitative et complète la nature quantitative des procédures classiques d'enquêtes vétérinaires, telles que les interviews des propriétaires de troupeaux, l'observation clinique et pathologie clinique. Selon les besoins d'une communauté ou d'une organisation donnée, l'épidémiologie participative peut également combiner les avantages des approches et des méthodes participatives avec des enquêtes quantitatives. On encourage l'adaptation méthodologique.

les maladies en question. Cette connaissance des données secondaires influence les processus d'investigation et de triangulation.

- Etre disposé à apprendre, à pratiquer et à appliquer les méthodes participatives – y compris adapter des méthodes aux réalités du terrain.

Figure 1. Méthodes qualitatives pour les enquêtes vétérinaires et participatives



3.2 Fiabilité et validité

Bien que les professionnels d'un large éventail de disciplines utilisent régulièrement des approches participatives, les vétérinaires ont mis du temps à adopter cette méthode de travail. En 1999, le projet Approches participatives en matière d'épidémiologie vétérinaire (PAVE) de l'IIED a réalisé une enquête sur les vétérinaires travaillant en Afrique dans le but d'évaluer la compréhension et les utilisations de l'évaluation participative (Catley 2000a).[2] Cette enquête a montré que les vétérinaires considéraient le caractère qualitatif de l'évaluation participative comme une contrainte, tout en reconnaissant son importance dans la prise en compte des préoccupations locales et dans la création de liens avec les éleveurs. Bon nombre de vétérinaires considéraient les données quantitatives comme peu fiables, pas valables et difficiles à intégrer dans les systèmes d'information officiels sur les maladies.

En réponse à ces préoccupations, le projet PAVE a comparé les objectifs et les méthodes d'enquête quantitative avec ceux d'enquête quantitative d'un point de vue vétérinaire, en mettant l'accent sur les conditions qui prévalent dans les zones pastorales (Catley, 1999). Une section de cette étude a critiqué l'utilisation des questionnaires pour les enquêtes relatives à la santé animale, et a constaté le nombre peu élevé d'enquêtes qui respectent les directives relatives aux meilleures pratiques. Quoique généralement considérés par les vétérinaires comme "objectifs" et "quantitatifs", les questionnaires sont souvent mal conçus et administrés sans tenir compte des préjugés de l'enquêteur et des zones ne faisant pas partie de l'échantillon. L'étude a, en outre, proposé deux options pour apprécier l'importance de l'évaluation participative en épidémiologie vétérinaire. La première option a souligné la nécessité de comprendre les objectifs et la portée de l'enquête qualitative et en particulier le caractère contextuel et inductif de cette approche.[3] Par conséquent, il a été suggéré qu'un système d'évaluation de la fidélité en 12 points, tel que cela a été proposé pour l'apprentissage et l'action participatifs (Pretty et al., 1995), soit également appliqué aux enquêtes vétérinaires qualitatives.

La seconde approche pour comprendre la fiabilité et la validité de l'évaluation participative a mis l'accent sur les mesures objectives.

2. Le terme 'évaluation participative" couvre les approches et méthodes inspirées de la Méthode Active de Recherche Participative (MARP), le Diagnostic Rural Rapide (DRR) et de l'Apprentissage et l'Action Participatifs (AAP).
3. Une approche inductive est ouverte. Les réponses à une série de questions induisent de nouvelles questions.

Tableau 1 Fiabilité et validité de l'évaluation des méthodes d'épidémiologie participative: synthèse des activités menées par le projet PAVE, 1999-2001

Date	Description	Principaux partenaires
Mai 1999 à août 2000	Etudes du *liei*/maladie chronique du dépérissement chez le bétail dans la partie ouest du haut Nil, dans le haut Nil et dans le Bahr el Ghazal, avec les Communautés Nuer et Dinka du Sud Soudan. La caractérisation locale des maladies et comparaison avec les points de vue vétérinaires, l'examen pathologique et les études en laboratoire.	• Opération Lifeline Sudan (Secteur sud) Livestock Programme • VSF Suisse • Save the Children (UK)
Novembre 2000	Etude du gandi/la trypanosomiase bovine en collaboration avec les communautés Orma dans le Tana River District, Kenya. La caractérisation locale, estimation de l'incidence et les préférences en matière de méthodes de lutte.	• Kenya Trypanosomiasis Research Institute (KETRI) • Catholic Relief Services • Diocèse de Malindi
Avril à août, 2001 (et après)	Etudes des manifestations chroniques suspectées de la fièvre aphteuse chez les bovins, en collaboration avec les communautés Massai et Wasukuma, dans les régions de Mwanza et de Shinyanga, en Tanzanie.	• Faculty of Veterinary Medicine • Sokoine University of Agriculture • Mwanza Veterinary Investigation Centre

Le projet PAVE a réalisé, dans les zones pastorales de la Corne de l'Afrique, une série d'enquêtes sur les maladies animales qui visent à comparer les données issues de l'évaluation participative et objective des maladies animales spécifiques. La recherche a été menée dans trois sites (tableau 1) et les éleveurs ont identifié les maladies comme étant des priorités. Leurs requêtes concernant les conseils et les enquêtes ont été transmises au projet PAVE par l'intermédiaire des ONG de terrain ou d'autres services. La méthodologie de base de ces enquêtes supposait une comparaison des perceptions des éleveurs avec les résultats des enquêtes vétérinaires conventionnelles. Par ailleurs, des outils d'évaluation participatives "standardisés" ont été mis au point et utilisé de façon répétée pour évaluer leur fiabilité.

Les méthodes standardisées d'évaluation participative comprenaient des matrices de notation et l'empilement proportionnel. Le terme "standardisées" signifie que, pour chaque étude, les maladies, les indicateurs, les saisons et les notations étaient constantes pour chaque méthode, permettant ainsi la comparaison des résultats des différents informateurs. Grâce à l'utilisation de procédures du type notation dans ces méthodes[4] les données numériques sont venues directement des informateurs aux premiers stades de l'application de la méthode. Ces informations ont été résumées en utilisant des méthodes statistiques, comme le montrent les exemples des figures 2 à 4. Même si elles étaient standardisées, les méthodes comprenaient également l'utilisation de questions ouvertes et complémentaires pour contre-vérifier et compléter les questions intéressantes. En outre, d'autres méthodes d'évaluation participative notamment des interviews semi-structurées et l'établissement de carte ont été utilisées de façon ponctuelle dans le cadre du processus de triangulation.

Les méthodes d'évaluation standardisées comprenaient des procédures qui visaient à améliorer la qualité des données. Par exemple, pour ces méthodes, il fallait des informateurs pour comparer les caractéristiques de nombreuses maladies et pas seulement celles de la maladie qui constitue le centre d'intérêt. Cette approche a été utilisée pour éviter des réponses excessives aux estimations relatives à la mortalité et à la morbidité (Figure 3). Par ailleurs, les méthodes de matrice de notation pour visualiser et noter les symptômes et les causes de la maladie comprenaient des "maladies témoins" (Figure 2). Ces maladies étaient déjà bien connues des chercheurs et leurs noms locaux étaient associés aux noms spécifiques données à ces maladies en Occident. En conséquence, les maladies témoins étaient utilisées pour vérifier si les informateurs comprenaient la procédure de la matrice de notation ou non.

Dans le cas des études menées au Sud du Soudan et au Kenya,[5] les résultats ont montré que les méthodes d'évaluation participative permettaient de recueillir des informations fiables et valables lorsqu'on les utilise en ayant recours aux informateurs des communautés pastorales.

4. Par exemple, la répartition de pile de jetons (semences ou cailloux) par rapport aux signes de maladies, les causes de maladie, l'incidence de la maladie, les saisons ou autres indicateurs.
5. Les recherches se poursuivaient encore en Tanzanie pendant la préparation du présent article.

Figure 2. Exemple de synthèse de matrice de notation pour les signes de maladies/les maladies dans les région du Nur au Sud Soudan

Signes de maladies	*Liei* Parasitisme mixte	*Dat* FMD	*Moguar* Gastro-entérites parasitaire	*Doop* CBPP	*Macueny* Fasciolose
	Maladies				
Perte de poids chronique (W=0.51***)	10 (6.0-16)	1 (0-2.5)	3 (0-3.0)	1 (0-2.5)	1 (0-2.0)
L'animal recherche l'ombre (W=0.88***)	0 (0)	20 (17-20)	0 (0)	0 (0-3.0)	0 (0)
Diarrhée (W=0.52***)	4 (0-8.5)	0 (0)	11 (6.0-16)	0(0)	4 (0-7.5)
Faible production laitière (W=0.51***)	2 (0-4.0)	13 (7.0-20)	3 (0-9.0)	1 (0-2.5)	0 (0-1.0)
Toux (W=0.76***)	0 (0-0.5)	0 (0-0.5)	0 (0-2.0)	19 (16.5-20)	0 (0-0.5)
Faible appétit (W=0.54***)	0 (0)	13 (7.0-20)	0 (0)	5 (0-10)	0 (0)
Perte des poils de la queue (W=0.89***)	20 (16.5-20)	0 (0)	0 (0-3.5)	0 (0)	0 (0)
Larmoiement (W=0.28*)	6 (3.0-13)	2 (0-6.5)	4 (0-8.5)	0 (0-1.5)	3 (0-8.0)
Salivation (W=0.50***)	2 (0-3.0)	14 (7.0-20)	3 (0-6.5)	1 (0-2.0)	0 (0-0.5)

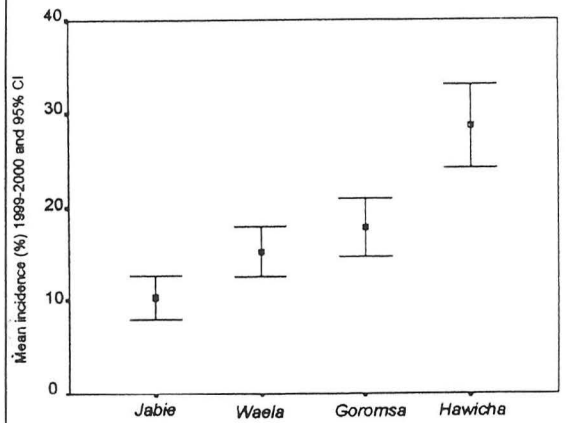
Cette méthode a été utilisée pour répondre à la question suivante "comment les gens diagnostiquent-ils la maladie appelée *liei* par rapport aux autres maladies ?" La méthodes comprend 2 "maladies témoins" appelées *dat* et *doop*, qui ont déjà été diagnostiquées par les vétérinaires comme étant respectivement FME et CBPP. Ces maladies témoins ont été utilisées pour vérifier si les informateurs ont compris la procédure de notation.

Nombre de groupe d'informateurs = 12; la taille des groupes varie de 4 à 11 personnes. Les points noirs représentent les notes (nombre de semences) qui ont été utilisées lors de la notation en utilisant la matrice. Les valeurs médianes sont présentées (seuil de confiance = 95 %). Un grand nombre de points indique une forte corrélation entre un signe et une maladie alors qu'un nombre peu élevé indique une faible association.

W = Coefficient de Concordance de Kendall (*p<0.05; **p<0.01; ***p<0.001). Il s'agit de la mesure du niveau de concordance entre les 12 groupes d'informateurs pour chaque signe liée à une maladie. Un niveau de concordance élevé entre les groupes indique que la méthode est très fiable.

Source: Catley et al., 2001

Figure 3. Incidence estimée de gandi/trypanosomiase par groupe d'âge sur un troupeau Orma à Tana River, Kenya



Source: Catley et al., 2001

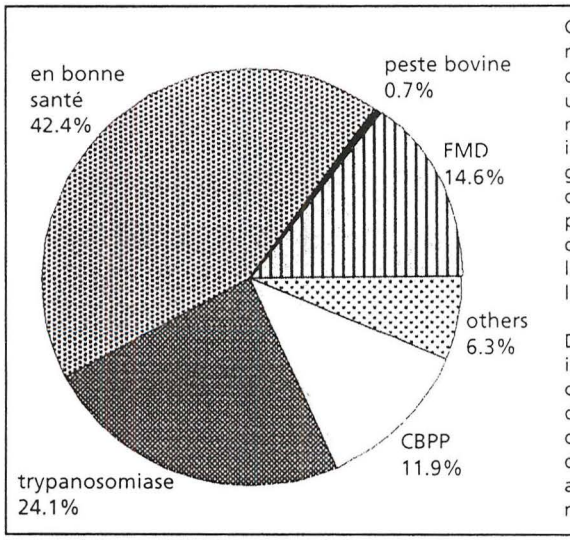
Ce graphique a été fait à partir des résultats de l'empilement proportionnel des principales maladies du bétail au cours de la période 1999-2000, par groupe d'âge d'animaux, avec, 50 informateurs. Il illustre l'incidence moyenne et des intervalles de confiance de 95%.

La classification, ci-après, des groupes d'âge au sein du bétail par les Orma a été utilisée :

Jabie 0-2 years
Waela 2-3 years
Goromsa 3-4 years
Hawicha > 4 years

Cette augmentation de l'incidence de la maladie avec l'âge correspond à la pensée vétérinaire conventionnelle

Figure 4. Synthèse des estimations de la maladie à Tana River, Kenya



Source: Catley et al., 2001

Ce camembert est basé sur les résultats de la même méthode d'empilement proportionnel utilisée dans la Figure 3. Cette méthode exigeait que les informateurs examinent chaque groupe d'âge d'animaux à tour de rôle et répartissent les cailloux pour indiquer l'incidence relative des maladies. Le camembert fait la synthèse des résultats de tous les groupes d'âge d'animaux.

Dans une certaine mesure, ces informations peuvent être contre-vérifier avec les méthodes d'enquêtes vétérinaires conventionnelles, telles que la détection en laboratoire des agents responsables de la maladie ou les anticorps.

Chose intéressante, les recherches ont également souligné les limites de la comparaison entre la méthodologie participative et la méthodologie objective. Théoriquement, la validité du diagnostic de la maladie fait par les pasteurs, exprimée dans les langues locales, et leurs perceptions quant aux proportions d'animaux affectés, peuvent être contre-vérifiées en utilisant les techniques vétérinaires modernes pour apporter une réponse "scientifique" ou "objective". Ces techniques modernes comprennent des tests de laboratoire qui permettent de détecter soit un agent causal (un virus, une bactérie ou un parasite) soit la preuve d'une infection en cours ou antérieure (grâce à la détection d'un anticorps). Toutefois, il y a de nombreuses contraintes lorsqu'on considère la validité de cette approche.

Par exemple, la valeur d'un test de laboratoire est déterminée par sa sensibilité et sa spécificité. La sensibilité se définie par la capacité d'un test à détecter l'infection et à ne pas rater les animaux infectés (c'est-à-dire, les cas d'infection "positive"). Sur un troupeau de 100 têtes qui sont toutes infectées par un parasite X, un test très sensible pourrait détecter le parasite chez 98 animaux et ne pas le détecter 2 cas. On dirait que ce test à une sensibilité de 98 % et que le nombre de faux négatifs est faible (seulement 2 %). La spécificité est la capacité d'un test à identifier correctement l'agent de la maladie. Sur un troupeau de 100 animaux qui ne sont pas infectés par un parasite X, un test très spécifique pourrait classer une vache comme positive et identifier correctement les 99 autres comme négatif. Dans ce cas, on dirait que le test a une spécificité de 99 % et que le taux de faux positifs est de 1 %

Dans le cadre des recherches faites par le projet PAVE, les tests diagnostics disponibles présentaient d'importantes lacunes. Pour la trypanosomiase, le meilleur test diagnostic pour les enquêtes de terrain avait une sensibilité de 50 % environ; autrement dit, il ne permet pas de détecter 50 % des cas d'animaux positifs. . Pour une autre maladie importante, la fasciolose (douves du foie), les tests de laboratoire avaient une sensibilité de 30 % seulement (c'est-à-dire que 70 % des cas positifs n'ont pas été détectés par le test). Ces caractéristiques des tests diagnostics indiquaient la difficulté d'obtenir une "vraie" estimation de la présence de la maladie. Dans les cas où les pasteurs ne sont pas en mesure de faire un diagnostic ferme d'une maladie ou semblent regrouper un ensemble de symptômes de maladie en un syndrome vague, les tests dernier cri, mis au point par les vétérinaires, ne sont pas nécessairement plus fiables que l'opinion des pasteurs.

3.3 Utilisations des méthodes participatives en épidémiologie vétérinaire

Différents types d'agents vétérinaires utilisent maintenant les approches et les méthodes participatives pour une diversité de raison. Quelques-unes des utilisations les plus courantes dans les zones pastorales sont présentées ci-après et des méthodes spécifiques sont décrites dans RRA Notes No. 20 (1994), Catley (1999) et Mariner (2001).

Enquêtes sur la santé animale, évaluation des connaissances et plans d'action

Sans doute, l'évaluation participative a été le plus fréquemment utilisée lors des enquêtes sur la santé animale, réalisées par les ONG dans le cadre des projets communautaires de santé animale. ITDG a commencé à utiliser les méthodes du genre évaluation participative en 1986 lorsqu'une enquête de base faite au Kenya comprenait l'utilisation des méthodes telles que la classification de la richesse, des historiques de la descendance, des listes de questions ethnovétérinaires et des interviews informelles. Dans les années qui ont suivi, d'autres méthodes, telles que les transects, l'établissement de cartes et les exercices de classification, ont été également utilisées. Maranga (1992) a décrit la façon dont ITDG a utilisé la classification de la richesse, des maladies et de la réussite dans les projets au Zimbabwe et au Kenya. Dans ces projets, l'évaluation participative a été utilisée lors de l'évaluation initiale des besoins ou des enquêtes de faisabilité. Elle visait à donner un rapide aperçu des questions clés, des relations et des services au sein des communautés ainsi que les maladies animales qui sont prioritaires au niveau local. A la fin des années 1990, de nombreuses ONG du Kenya, de l'Ouganda, de la Tanzanie et de la Somalie utilisaient régulièrement l'évaluation participative dans les projets de santé animale. De même, cette méthode a joué un rôle important dans les programmes communautaires mis en place par *Operation Lifeline Sudan Livestock Programme* (Leyland, 1996) et *Pan African Rinderpest Campaign* (Mariner, 1996).

Suivi, mesure de l'impact et évaluation

L'évaluation participative a été très utilisée aux premiers stades de la mise en oeuvre du projet, toutefois son utilisation dans le cadre du suivi et de l'évaluation de projet a été moins importante. Dans les zones pastorales de la Corne l'Afrique, ActionAid-Somaliland a utilisé des méthodes d'évaluation participative dans le cadre d'une approche systémique partici-

pative et souple adoptée lors des revues de programmes en 1994 et 1998 (ActionAid-Somaliland, 1994, 1998). Une revue du projet communautaire de santé animale d'Oxfam GB/Ireland, dans le Karamoja, en Ouganda (Catley, 1997) a également utilisé les méthodes d'évaluation participative et des outils de notation ont été intégrés dans une évaluation par questionnaire du projet faite par Oxfam GB/Ireland dans le Wajir, au Kenya en 1998 (Odhiambo et al., 1998). Les approches et méthodes participatives d'évaluation d'impact ont été également mises au point et testées par VSF-Belgique et VSF-Suisse au Sud Soudan (Catley, 2000b).

Etudes ethnovétérinaires

Des études spécifiques visant à collecter et à documenter les connaissances vétérinaires locales ont utilisé, à divers degrés, des méthodes d'évaluation participative. Comparés aux différentes méthodes d'évaluation participative utilisées pour la mise en place de services communautaires de santé animale, des études ethnovétérinaires ont eu tendance à recourir à un éventail réduit de méthodes d'interview. Souvent ces méthodes ont été plus formelles qu'informelles et se sont basées sur des questionnaires et des interviews structurées de propriétaires d'animaux pour recueillir les données. Travaillant avec ITDG au Kenya, Wanyama (1997) a également utilisé différentes méthodes de classification et de notation dans le cadre d'une approche plus participative en matière de recherche ethnovétérinaire.

Localisation participative de la maladie

Les phases ultérieure s des programmes d'éradication de la maladie animale nécessite la recherche des derniers vestiges de la maladie et leur élimination au sein population. La recherche participative des maladies s'est développée au sein de *Pan African Rinderpest Campaign* et s'est appuyée sur les connaissances des pasteurs sur la peste bovine pour localiser les foyers de la maladie dans les zones reculées. L'approche était basée sur des méthodes participatives telles que des interviews semi-structurées et en particulier, sur l'utilisation des questions plus poussées pour étudier à fond les connaissances locales sur la peste bovine. L'établissement de cartes et de chronogrammes a été aussi utilisé pour donner un aperçu historique des épidémies de peste bovine dans une zone donnée (Mariner et Flanagan, 1996; Mariner, 2000). Ces méthodes ont combinées avec des méthodes conventionnelles d'enquêtes vétérinaires telles que l'examen clinique et en laboratoire. Lorsque l'équipe de recherche localise effectivement un foyer de peste bovine, l'implication des éleveurs pendant la recherche signifiait qu'on engageait facilement la discussion sur les mesures à prendre pour lutter contre l'épidémie. Au moment de la rédaction de l'article, la recherche participative des maladies avait des chances de prendre de l'importance au fur et à mesure que les pays de la Corne de l'Afrique cherchaient à identifier les foyers de peste bovine restants dans les zones reculées.

Recherche participative

Les activités de recherche menées par le projet PAVE et présentées dans le tableau 1 peuvent être décrites comme faisant partie de la recherche participative. Dans chaque site étudié, les maladies qui font l'objet d'une enquête ont été identifiées par les éleveurs comme étant des priorités et ces derniers ont demandé aux agents vétérinaires de leur donner des conseils sur la lutte contre la maladie et leur traitement. Dans chaque cas, la principale activité de terrain était le diagnostic participatif suivi de discussion sur les mesures appropriées en matière de lutte. Au Sud Soudan, les résultats des recherches ont été présentés au *Operation Lifeline Sudan Livestock Programme* et un cours de recyclage des agents vétérinaires a été programmé. Une autre proposition a été également formulée en vue d'associer les éleveurs à l'évaluation des différentes possibilités de traitement de la maladie en question. Au Kenya, les résultats de la recherche ont été présentés aux représentants des communautés et un plan d'action pour des activités ultérieures a été arrêté avec le KETRI (Catley et al., 2002).

Modélisation de la maladie

Des simulations de la transmission d'une maladie à l'aide de l'ordinateur peuvent aider les épidémiologistes à mettre au point des stratégies de lutte contre les maladies. Grâce à la compréhension du mode de transmission de la maladie d'un animal à un autre, il est possible d'identifier les méthodes appropriées pour y mettre fin. La modélisation peut souvent s'appuyer sur l'opinion d'expert fourni par les techniciens pour estimer les valeurs des paramètres lorsque les données sont rares ou trop chères à recueillir. Une critique qui est souvent faite à l'encontre des modèles est la suivante : les personnes qui élaborent le modèle ou qui donnent un avis d'expert sont coupées des réalités sur le terrain. Souvent, cela signifie que la validité des données de terrain utilisées pour la mise au point du modèle n'est totalement comprise et des conclusions inappropriées sont donc tirées. De même, les recommandations pour la lutte

contre les maladies devraient être éclairées par une connaissance des préférences locales concernant différentes méthodes de lutte.

Au sud Soudan, les méthodes participatives ont été utilisées pour recueillir des données de base pour la mettre au point un modèle sur la peste bovine (Mariner, 2001). Le paramètre clé de cette opération a été la mesure de la transmissibilité de la maladie, appelé le nombre fondamental de reproduction (R_0).[6] Le nombre fondamental de reproduction est à la fois une caractéristique de l'agent infectieux et de la structure de la population qui l'abrite. La construction d'un modèle nécessite une connaissance de la structure d'âge du troupeau et du taux de mortalité du à la peste bovine dans les différentes tranches d'âge du troupeau. La mise au point du modèle nécessite également la connaissance de la structure de la population et du niveau de contact entre les troupeaux. Ce contact entre troupeaux est directement lié aux relations spatiales, temporelles et sociales entre les communautés adjacentes. Les méthodes participatives constituent un moyen idéal pour étudier la structure de la communauté. Les méthodes telles que l'établissement de carte peuvent être utilisées pour quantifier le contact entre les communautés et les troupeaux ainsi que les variations saisonnières des niveaux de contact.

Après l'estimation de R_0 un modèle a été élaboré pour montrer l'effet de la vaccination sur la présence de la peste bovine dans une population donnée. Ce modèle a été utilisé pour prédire le niveau de couverture vaccinale nécessaire pour stopper la transmission de la peste bovine à l'intérieur et entre les troupeaux au Sud Soudan. Même si les travaux se poursuivent, l'approche dite de la"modélisation participative " combine les avis d'expert des éleveurs avec des mathématiques complexes et le diagnostic conventionnel en vue d'élaborer de meilleures stratégies de lutte contre la maladie. Par ailleurs, les modèles relatifs aux maladies peuvent être mis au point avec relativement peu de données, à condition que leur fiabilité soit connue.

6. R_0 se défini comme le nombre de cas secondaires prenant d'un cas d'indice infectieux dans une population totalement prédisposée. Par exemple, un agent causal de maladie à faible transmissibilité peut avoir $R_0 = 0.8$ et un tel agent ne se maintiendrait pas au sein d'une population. Agent plus transmissible peut avoir $R_0=10$. Cet agent se propagerait rapidement dans une population prédisposée.

3.4 Problèmes posés par l'approche participative

L'utilisation de l'évaluation participatives dans le domaine vétérinaire pose différents problèmes tout comme l'utilisation des approches et méthodes participatives par les agents d'autres secteurs techniques. Par exemple, l'enquête menée, en 1999, auprès des vétérinaires travaillant en Afrique a montré que le nombre de vétérinaires utilisant l'évaluation participative était supérieur à celui des vétérinaires qui avaient reçu une formation dans ce domaine. (Catley, 2000a). En outre, un grief souvent formulé concernait " les attitudes négatives des collègues et des supérieurs hiérarchiques" et l'insuffisance des formations et des manuels. Lorsque les individus ont eu la possibilité de prendre part à des formations, la qualité de celles-ci était variable. Par exemple, lors d'un recyclage des chercheurs de KETRI sur les méthodes participatives, l'un des auteurs a demandé aux participants de décrire des expériences clés relatives à leur formation antérieure à la MARP. La réponse classique a été la suivante : "c'est vraiment la même chose qu'une enquête par questionnaire". Cette confusion apparaît clairement dans le nombre croissant d'articles et de propositions d'article se rapportant au domaine vétérinaire, qui viennent d'Afrique et qui prétendent utiliser des approches et méthodes participatives. Selon notre expérience, il est rare de trouver un rapport ou une proposition qui utilise des méthodes autres que les interviews structurées ou qui proposent aux chercheurs une formation en évaluation participative, suivie de l'élaboration d'une méthodologie et d'une expérimentation sur le terrain.

Bien que cela ne constitue pas encore un problème sérieux, nous sommes également conscients des risques de la mise au point de méthodes standardisées en matière d'évaluation participative telles que celles utilisées par le Projet PAVE. Au pire, cette approche pourrait encourager "une fixation sur les méthodes" comme cela a été décrit par les agents d'autres secteurs (par exemple Guèye, 1999). Cependant, même si le projet PAVE a standardisé certains aspects de méthodes telles que les matrices de notation, sa méthode consistait en grande partie à "interroger la matrice", à contre-vérifier les notes et à poser des questions ouvertes ou d'éclaircissement pour susciter la discussion. Mais il y a un problème parce que certains chercheurs ont bien compris le concept d'enquête ouverte et aimaient poser des questions supplémentaires alors que d'autres se concentraient uniquement sur l'enregistrement des notes de la matrice et considéraient cela comme le principal produit de la méthode. Cette expérience a beaucoup de choses en commun avec les rapports produits par d'autres agents, à savoir que l'attitude, le comportement et un certain état d'esprit sont essentiels pour mener une enquête participative efficace.

4. Orientations futures

Même si l'épidémiologie participative est seulement utilisée par une poignée de vétérinaires en Afrique, il y a des possibilités de promouvoir son développement et son application plus larges. En particulier, le Programme Panafricain de lutte contre les épizooties (PACE) couvre 32 pays et visent à éradiquer la peste bovine d'Afrique, à améliorer la lutte contre d'autres épizooties et à renforcer la capacité des unités nationales d'épidémiologie vétérinaire. Concernant l'éradication de la peste bovine et la lutte contre les épizooties, il est particulièrement difficile de lutter contre ces maladies dans les troupeaux de pasteurs et d'agropasteurs. Combinées avec le diagnostic vétérinaire classique, les approches participatives peuvent aider les vétérinaires à mieux comprendre la dynamique des maladies dans les zones pastorales et à développer, en même temps, de meilleures relations de travail avec les communautés de pasteurs.

Au sein du PACE, l'unité de santé animale et l'épidémiologie participative communautaires (CAPE) se propose d'encourager les principaux services vétérinaires régionaux et nationaux à s'informer davantage sur les approches participatives dans les zones pastorales de la Région de la Corne de l'Afrique. Les principales activités de l'unité CAPE sont les suivants :

- Diffusion des expériences en matière d'épidémiologie participative à travers des publications académiques et informelles et des ateliers.

- Formation en épidémiologie participative à l'intention des épidémiologistes de niveau supérieur des services vétérinaires de l'Etat, des écoles de vétérinaires et des instituts de recherche, suivie d'une application sur le terrain – par exemple en tant que composante de systèmes de surveillance épidémiologique et de recherche dans les zones pastorales.

- Encouragement des épidémiologistes vétérinaires à s'impliquer dans la conception, le suivi et l'évaluation des impacts des programmes communautaires de santé animale mis en oeuvre dans les zones pastorales; création de liens entre les épidémiologistes de l'Etat et les programmes des ONG.

- Examen, en collaboration avec les écoles de vétérinaire, des possibilités d'intégration de la santé animale et de l'épidémiologie participative à base communautaire dans les programmes de formation de premier, second et troisième cycle universitaire; appui au étudiants de troisième cycle pour mener des recherches participatives dans les zones pastorales.

Ces activités visent, enfin de compte, à améliorer le flux d'information en provenance et à destination des communautés pastorales, à permettre une plus grande utilisation des services communautaires de santé animale et à réduire l'isolement des pasteurs des marchés nationaux et internationaux du bétail.

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International Institute for Environment and Development

Programme Zones Arides

Le Programme Zones Arides oeuvre pour la promotion d'une gestion plus efficace et équitable des ressources naturelles de l'Afrique semi-aride. Ses efforts sont tout particulièrement centrés sur la gestion décentralisée des ressources naturelles, le développement pastoral, les régimes fonciers et les problèmes d'accès aux ressources. Les principaux objectifs du programme sont de renforcer les capacités des communautés locales pour une gestion durable des ressources, à travers la mise en place d'institutions locales efficaces et responsables, d'identifier et de promouvoir des politiques nationales qui reconnaissent et renforcent le pouvoir de prise de décisions et l'autorité au niveau local. En outre, le Programme Zones Arides appuie toutes actions de plaidoyer et de lobbying pour l'adoption de politiques et d'institutions qui soutiennent les besoins et priorités de développement des populations vivant dans les zones arides.

Ces objectifs sont matérialisés à partir des cinq activités suivantes: (1) la recherche en collaboration avec différents partenaires en Afrique, (2) la formation et la promotion des méthodes participatives, (3) la dissémination de l'information, (4) le conseil en matière de politiques auprès des bailleurs de fonds et enfin (5) l'information et la mise en réseau pour promouvoir des relations d'apprentissage mutuel entre pays francophones et anglophones de l'Afrique.

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Pan-African Programme for the Control of Epizootics (PACE)
Organization of African Unity/
Interafrican Bureau for Animal Resources (OAU/IBAR)

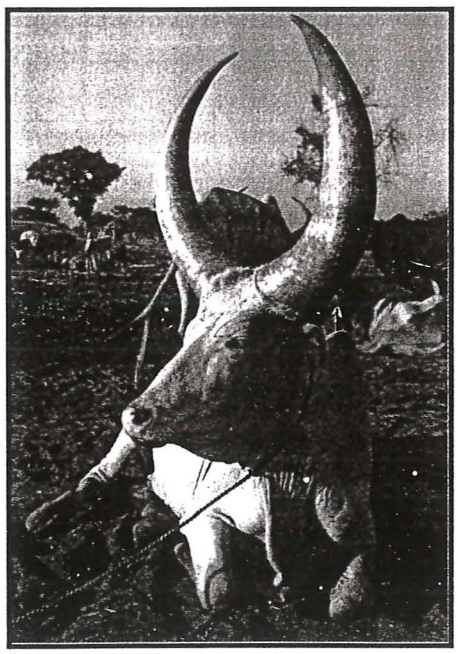
Community-based Animal Health & Participatory Epidemiology (CAPE) Unit

1. CONTEXT

1.1 Livestock and pastoralism

Throughout Africa, livestock are a vital source of economic and social support for millions of poor people. Livestock production systems vary from backyard rearing of poultry or bees to herding of large, mixed herds of camels, cattle, sheep and goats. Livestock produce milk, meat, blood, eggs, hides and skins and are used for transport and draught power. Small stock such as sheep, goats and fowl are convenient items to sell for cash or exchange for other items. Livestock ownership has major cultural significance in many societies, whether rural or urban, and features strongly in local perceptions of wealth and poverty. In areas with low rainfall, livestock are particularly important for human survival. When lack of water prevents crop production, livestock continue to convert natural vegetation into nutritious foods for people. Consequently, livestock are the main assets of pastoralist communities in Africa.

The pastoralist population of sub-Saharan Africa is estimated at more than 50 million people while Ethiopia, Eritrea, Sudan, Djibouti, Somalia, Kenya and Uganda support around 20 million pastoralists. Pastoralists usually inhabit semi-arid and arid lands, and typically, they derive at least 50% of their food and income from their livestock. The other common feature of pastoral groups and the key to understanding their way of life, is mobility. Movement is essential for pastoralists because low and erratic rainfall in dryland areas causes marked spatial and temporal variations in the grazing resource on which livestock depend.

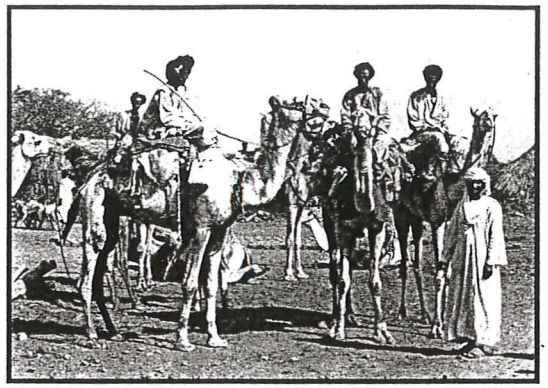


'If our animals are healthy, we are healthy'

For people who are highly dependent on livestock, veterinary services are a priority. When pastoralists are given an opportunity to express their concerns, livestock disease, water supply and insecurity usually feature at the top of the list. Diseases cause rapid loss of livestock assets and chronic reductions in milk supply, fertility or draught power. Important diseases include rinderpest, contagious bovine pleuropneumonia (CBPP), foot and mouth disease, trypanosomosis and internal and external parasites. Diseases such as foot and mouth disease prevent animals from pastoral areas entering formal international markets.

1.2 The challenge of providing sustainable veterinary services

Pastoral areas in the Horn of Africa are characterised by their large size, limited development, poor infrastructure and insecurity. Human populations tend to be small, highly mobile and difficult to reach unless on foot or in a four-wheel drive vehicle. Despite this situation, national veterinary services have tried to provide services to pastoralists by constructing clinics close to



urban centres. In the absence of vehicles, fuel and incentives for veterinary staff, these clinics cover only a fraction of the livestock population in pastoral areas. Furthermore, well-trained veterinarians are often reluctant to work in remote, marginalised areas with limited facilities and harsh working conditions. Due to these and other problems, livestock diseases of major economic and international importance still persist in pastoral areas.

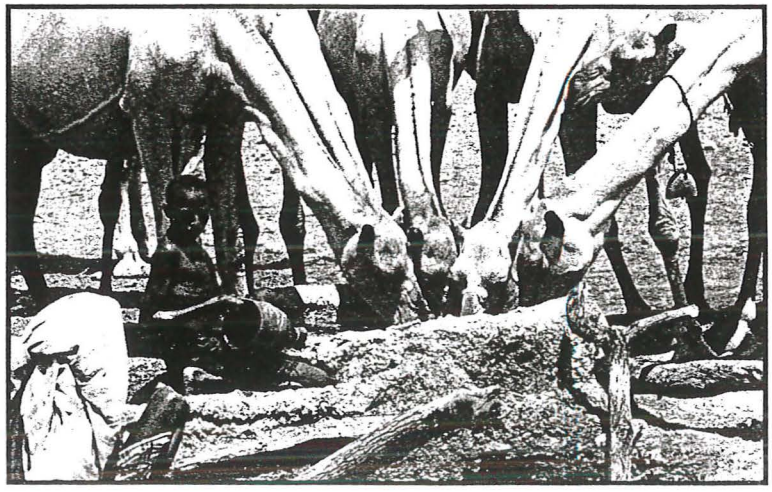
2. THE COMMUNITY-BASED ANIMAL HEALTH AND PARTICIPATORY EPIDEMIOLOGY (CAPE) UNIT

2.1 The Origins of CAPE

In the late 1980s, veterinarians began to develop alternative systems for providing animal health services in pastoral areas of Africa. Much of the early work was supported by non governmental organizations (NGOs) who used the principles of **appropriate technology** and **community participation** to make best use of the skills and knowledge of livestock keepers. These small-scale projects were often said to be 'community-based' because they involved local people in various stages of project implementation and focussed on local priorities. Many projects worked with communities to select people for training as **community-based animal health workers (CAHWs)**.

At the same time when NGOs were experimenting with community-based delivery systems, the **Pan African Rinderpest Campaign (PARC)** was experiencing difficulties in accessing remote pastoral communities. Although PARC had successfully eradicated rinderpest from most African countries, the disease persisted in insecure pastoral areas of the Horn of Africa. The government vaccination teams and cold chain refrigeration supported by PARC could not penetrate these areas for a variety of logistical, bureaucratic and other constraints. In some areas, civil war and the absence of recognised government prevented rinderpest control activities.

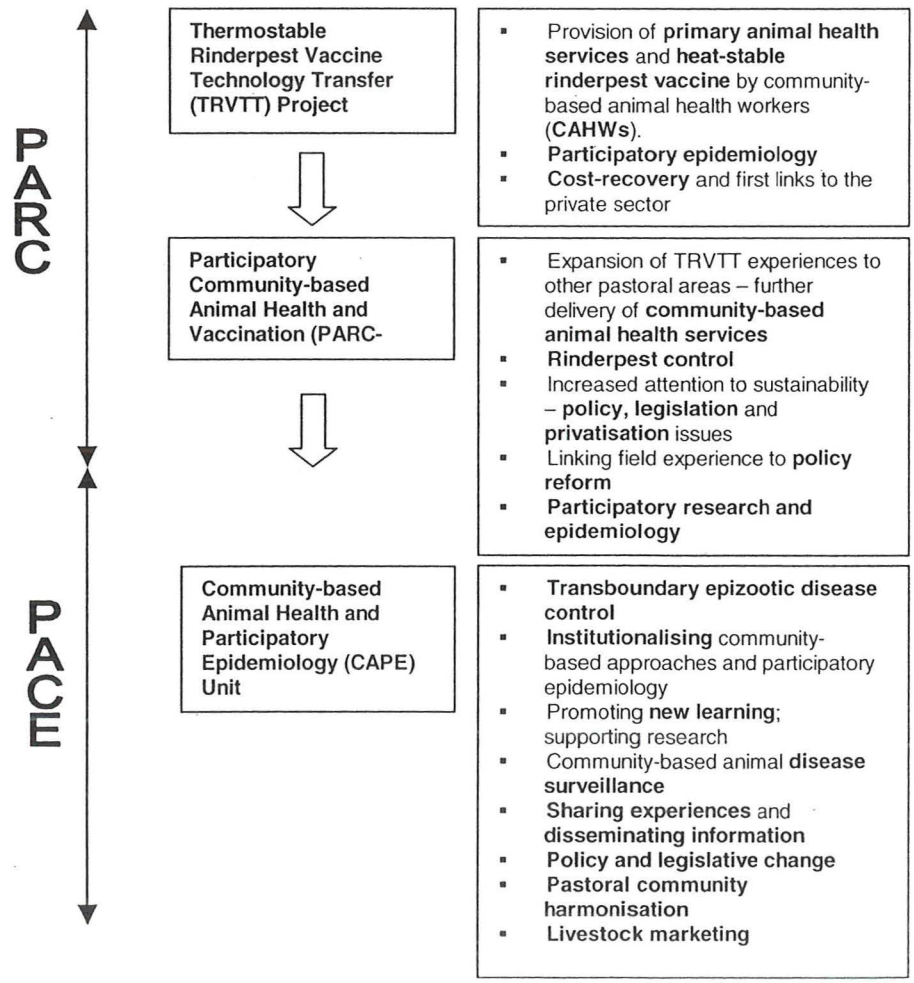
An important breakthrough was the development of a **heat-stable rinderpest vaccine** in the early 1990s. This new vaccine did not require extensive cold chains and provided an opening for CAHWs to deliver vaccine in areas such as the Afar region of Ethiopia and southern Sudan. Therefore, PARC began to develop community-based approaches to rinderpest control and combine rinderpest vaccination with the provision of primary-level veterinary services by



CAHWs. These activities were supported by the **Thermostable Rinderpest Vaccine Technology Transfer (TRVTT) Project** within PARC. An important feature of the TRVTT was the use of participatory appraisal methods to understand how pastoralists characterised and prioritised livestock diseases. This approach to utilising indigenous knowledge became known as **participatory epidemiology** and also enabled veterinarians to gain useful insights into the spatial and temporal patterns of disease.

Towards the end of the TRVTT Project, a new project was designed to further develop community-based delivery systems. The new project was also closely associated with PARC and was called the **Participatory Community-based Animal Health and Vaccination (PARC-VAC) Project**. The PARC-VAC project continued to support rinderpest control in pastoral areas, but also began to look more closely at the long-term sustainability of community-based animal health services. In an era of veterinary privatisation in Africa, PARC-VAC worked with a range of governmental, non governmental and private sector players to consider options for more appropriate **policy and legislative frameworks** for CAHWs. Also, there was a need to encourage government and NGOs to support far greater **private sector involvement** in the supply of veterinary medicines to CAHWs and ensure adequate professional supervision of CAHWs. Via collaboration with the International Institute for Environment and Development, PARC-VAC also supported studies on the reliability and validity of participatory appraisal methods for use in veterinary epidemiology.

Origins of the Community-based Animal Health and Participatory Epidemiology (CAPE) Unit



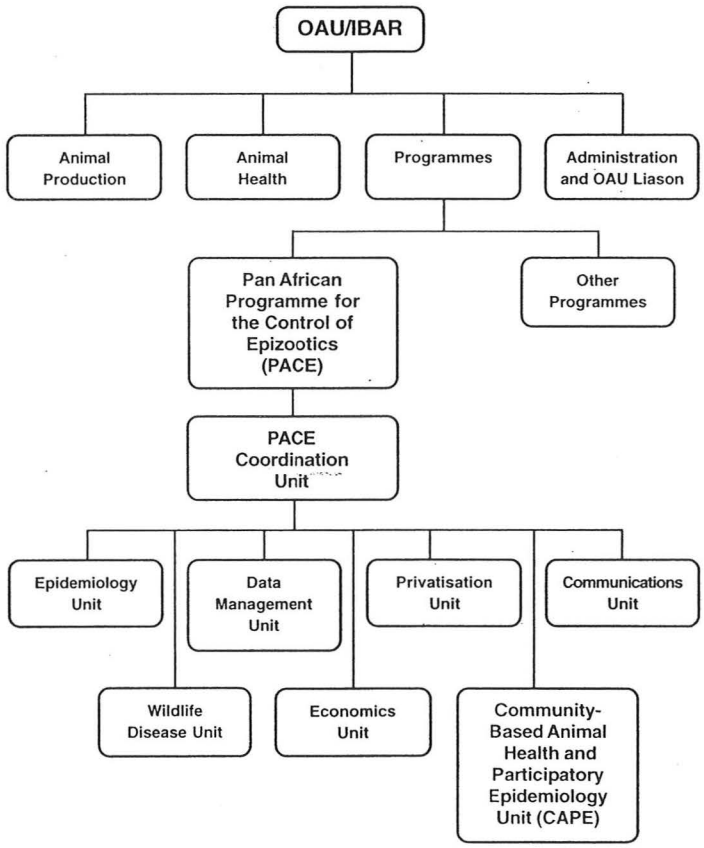
The **Community-based Animal Health and Participatory Epidemiology (CAPE) Unit** evolved from the TRVTT and PARC-VAC projects and was established in January 2001. The unit is a component of the Pan African Programme for the Control of Epizootics (PACE) within OAU/IBAR. The PACE Programme began in November 1999 and is due to end in 2004.

2.2 CAPE's position in the Pan African Programme for the Control of Epizootics

The Pan African Programme for the Control of Epizootics (PACE) covers 32 African countries. The main outputs of PACE are capacity-building of national veterinary epidemiology units and the control of epizootic diseases. The final eradication of rinderpest from Africa is a priority for PACE.

Within OAU/IBAR in Nairobi, the PACE Programme comprises seven technical units:

- *Epidemiology Unit*
- *Wildlife Unit*
- *Data Management Unit*
- *Economics Unit*
- *Privatisation and Legislation Unit*
- *Communications Unit*
- *CAPE Unit*



This structure enables CAPE to draw on technical support from other CAPE Units and offer support in the area of community-based delivery systems. Together with the other technical units of PACE and national PACE programmes, CAPE is coordinated by the PACE Coordination Unit in OAU/IBAR.

2.3 Outputs of CAPE

The CAPE Unit is operational at both field-level and policy level. This scope of operations, plus linkages to PACE and OAU/IBAR, enables CAPE to transfer field experiences to a range of stakeholders including national veterinary services, veterinary schools, research institutes, private practitioners, international livestock agencies and NGOs.
The unit's strategy and activities are based on five main outputs:

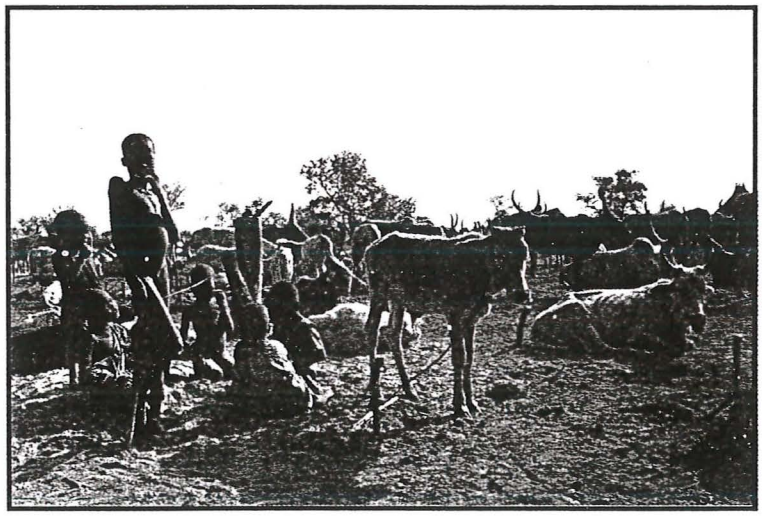
- **Development of primary-level veterinary services in pastoral ecosystems**

  The further development of basic veterinary services in pastoral areas is an important output of the CAPE Unit. This output acknowledges that although much useful experience has been gained from NGO projects and PARC, further work is required to expand community-based delivery systems and ensure quality in CAHW selection, training, monitoring and supervision. There are also opportunities to further link CAHWs to private veterinary practitioners to improve the long-term financial viability of community-based delivery systems.

  This output is intended to create self-sustaining animal health care systems in pastoral areas that are capable of controlling epizootic diseases through vaccination, surveillance or other means (depending on the disease in question). CAPE will work with veterinary epidemiologists to further develop community-based disease surveillance systems and explore linkages between participatory and quantitative epidemiology.

- **Promoting policy changes and legislation to create an enabling environment for community-based animal health services**

  A key sustainability issue for the CAPE Unit is the creation of policies and legislation to fully support community-based delivery systems. In some areas, CAPE aims to support change processes that are already underway and enable national veterinary services to assess the impact of policy reform. In other areas, policy reform can be initiated and facilitated by CAPE. During this process, CAPE will encourage country-to-country learning by enabling policy makers from different countries to share experiences. CAPE will also provide practical support to veterinary boards, such as assistance with redrafting specific veterinary acts and legislation.



- **Supporting new learning for policy change**

  Much of the experience with community-based delivery systems in pastoral areas resides with NGOs rather than policy makers. The CAPE Unit will collate existing information in order o inform policy makers and identify gaps in knowledge. CAPE will also support new learning by creating better linkages between NGOs, the private sector and government. Via support to teams of policy makers, CAPE will also conduct impact assessments with a view to generating information for new and improved policies. Literature related to policy change will be produced for both formal and informal publication.

- **Information dissemination**

  Much of the information on community-based delivery systems is located in the informal literature and NGO reports. CAPE aims to improve the dissemination of these experiences by circulating existing reports and supporting networks for the transfer of emerging literature to policy makers, veterinary schools, research institutes, NGOs and other stakeholders. Information on community-based delivery systems will be made available on the OAU/ IBAR website. CAPE will also support workshops and conferences to enable field workers, researchers and policy makers to share and discuss lessons learned.

- **Strengthening regional capacity**

The outputs summarised above will assist OAU/IBAR to develop capacity to promote changes in formal and informal institutions that shape service delivery in pastoral areas. CAPE can also provide specific change management support to OAU/IBAR

2.4 Where does CAPE work?

The CAPE Unit works in pastoral ecosystems that span nine countries, including regions in Central African Republic, Chad, Uganda, Sudan, Kenya, Tanzanian, Ethiopia, Eritrea and Somalia. A key factor when selecting the five ecosystems was the presence or threat of rinderpest and other transboundary epizootic diseases. In all the selected ecosystems, there are opportunities for improving veterinary service provision by support to community-based delivery systems. CAPE activities are not confined to these ecosystems. In collaboration with other PACE units and PACE National Programmes, CAPE also works in West Africa.

2.5 CAPE partnerships

The CAPE Unit will continue to build on the partnerships with national veterinary services, international NGOs and local NGOs, and donors established by PARC-VAC. The unit also plans to develop new links with other actors, such as veterinary schools, research institutes, PACE and FAO.

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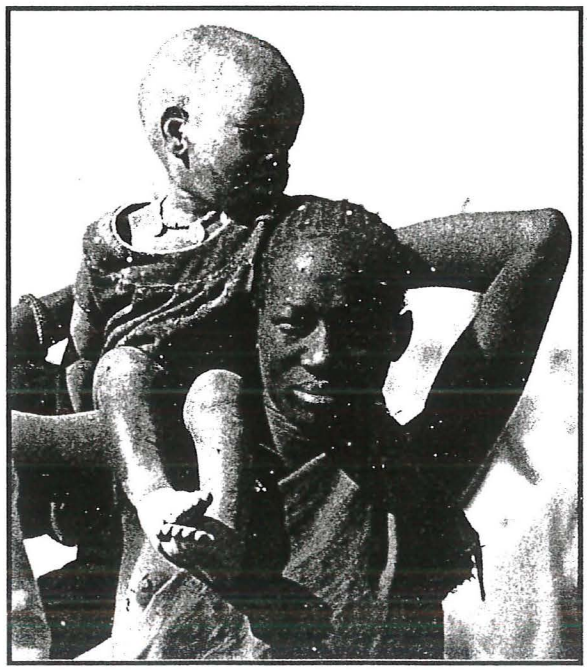


Participatory Epidemiology

Lessons Learned and Future Directions

Proceedings of a workshop held in Addis Ababa, Ethiopia
November 15th to 17th, 2001
Edited by Andy Catley and Jeffrey Mariner

PACE

Contents

Summary

The Pan African Programme for the Control of Epizootics (PACE) aims to complete the final eradication of rinderpest from Africa and improve control of other epizootics diseases such as contagious bovine pleuropneumonia and foot and mouth disease. Experience has shown that disease control is particularly problematic in more remote arid and semi-arid areas inhabited by pastoralist communities. In regions such as the Horn of Africa, logistical and resource constraints are compounded by insecurity and in some cases, limited government presence.

Within the PACE Programme, the Community-based Animal Health and Participatory Epidemiology (CAPE) Unit supports the development of primary-level veterinary services in pastoral areas. The focus is on privatised, community-based delivery systems that are enabled through appropriate policies and legislation. CAPE also aims to complement conventional livestock disease investigation and surveillance methods through the wider application of "participatory epidemiology" (PE). Participatory epidemiology has evolved from the principles and methods of Rapid Rural Appraisal and Participatory Rural Appraisal, and provides opportunities to make best use of pastoralists' considerable indigenous knowledge on animal health while also encouraging community participation in disease control.

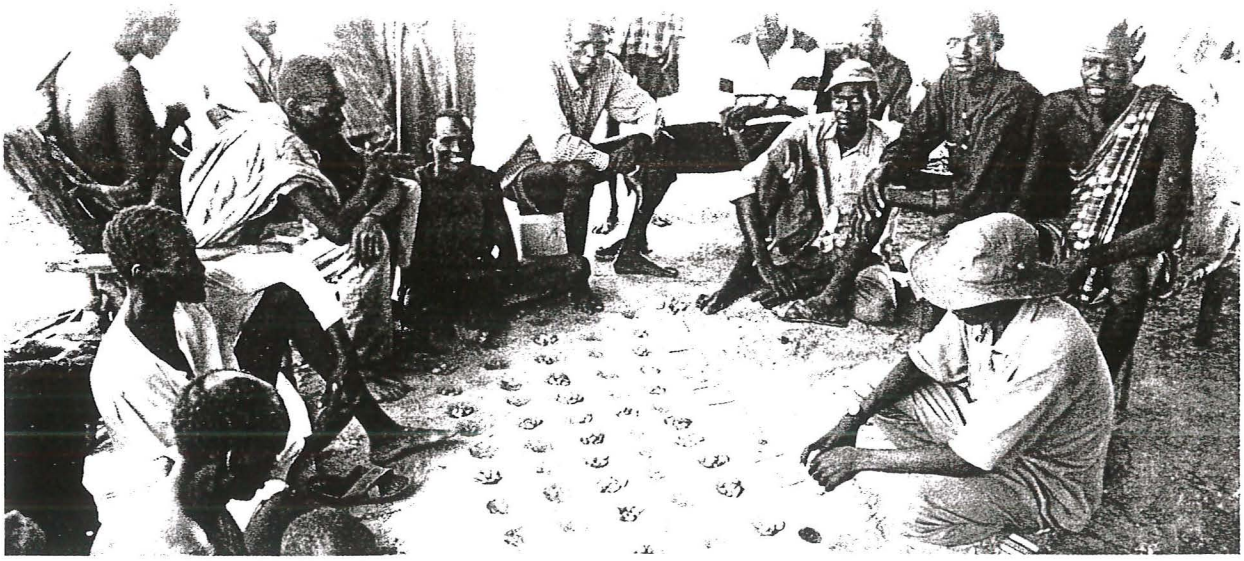
However, participatory approaches and methods are not widely used by epidemiology units within State Veterinary Services. This workshop was organised by the CAPE Unit to present recent developments in PE to senior veterinarians, academics and researchers in the Horn of Africa Region, and explore how PE might assist national PACE programmes to achieve their objectives. The workshop comprised a mix of presentations, discussion and working groups on key topics, and informal networking and exchange of experiences and ideas.

Recent developments in the use of PE by veterinarians with pastoralist communities in the region included studies of the reliability and validity of participatory methods, and the development of a disease model for rinderpest based on field data derived from PE. These experiences were useful for showing how PE can be combined with and complement conventional epidemiological approaches.

The main outcomes of the workshop were:

- Improved understanding of the potential roles of PE in veterinary epidemiology
- Raised awareness of important methodological issues affecting best practice of PE
- Widespread support for the wider use of PE in national PACE programmes
- Interest from veterinary schools for incorporating PE into either undergraduate or postgraduate teaching, and research activities
- Identification of PE training needs for veterinary and livestock workers at central and field levels

During 2002, the CAPE Unit will follow up training needs in national PACE programmes and support teaching and research on PE in veterinary schools and research institutes. The contents of an introductory training course on PE were presented and discussed during the workshop.



Abbreviations

ASF	African swine fever
CAHW	Community-based Animal Health Worker
CAPE Unit	Community-based Animal Health and Participatory Epidemiology Unit
CBPP	contagious bovine pleuropneumonia
FMD	foot and mouth disease
IIED	International Institute for Environment and Development
ND	Newcastle disease
OAU/IBAR	Organization of African Unity/Interafrican Bureau for Animal Resources
PACE	Pan African Programme for the Control of Epizootics
PARC	Pan African Rinderpest Campaign
PAVE	Participatory Approaches to Veterinary Epidemiology Project
PDS	Participatory Disease Searching
PE	Participatory Epidemiology
PRA	Participatory Rural Appraisal
RVF	Rift Valley fever
TOT	Training of Trainers

Acknowledgements

The workshop Participatory Epidemiology: Lessons Learned and Future Directions was opened by Ato Belay Ejigu, Vice Minister of Agriculture, Federal Democratic Republic of Ethiopia and Woizero Hadera Gebru, Head, Animal Resource and Fisheries Development Department.
The workshop was made possible by funding from the Department for International Development (DFID), United Kingdom to the CAPE Unit, PACE Programme, OAU/IBAR.

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Introduction

Background

Veterinarians in Africa have been using participatory approaches and methods since the late 1980s. Initially, experiences were largely derived from community-based animal health projects where PRA-type methods were used during project design. Soon after, 'participatory disease searching' evolved in the Pan African Rinderpest Campaign (PARC) as a means to trace rinderpest foci in remote areas. Over time, participatory methods have attracted increasing interest from veterinarians and are now used by a wide range of organizations. A survey of vets conducted with OAU/IBAR assistance in 1999 indicated that participatory methods were useful for developing good relationships with communities, understanding local knowledge and priorities, and were relatively inexpensive and flexible.

Within OAU/IBAR, two recent developments with the use of participatory methods are:

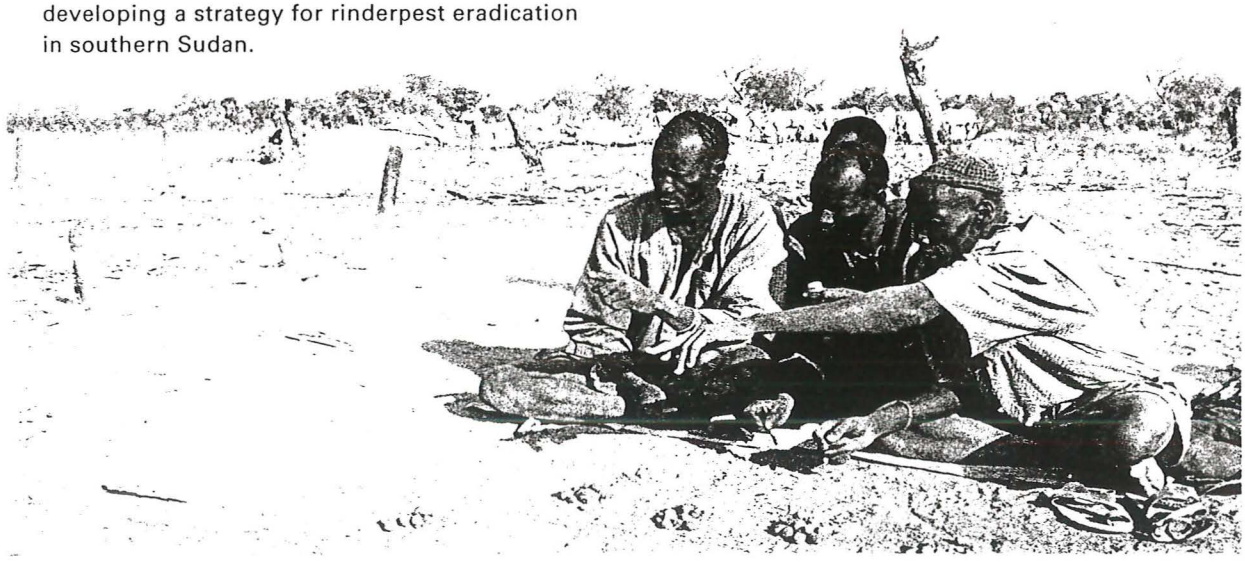
- The Participatory Approaches to Veterinary Epidemiology (PAVE) Project was implemented with the International Institute for Environment and Development (IIED) from 1998 to 2001, and focused on the reliability and validity of participatory methods. This research compared data derived from participatory inquiry with that obtained from conventional veterinary investigation methods, and also looked at options for quantifying 'participatory data'. Three studies were conducted in pastoral areas of southern Sudan, Kenya and Tanzania.
- In southern Sudan, participatory methods were used to generate data for a disease model for rinderpest. The model proved useful when developing a strategy for rinderpest eradication in southern Sudan.

Although many veterinarians are now using participatory methods, a number of issues remain open to discussion and further development. For example, while organizations such as IIED recommend training and field-level practice before using participatory methods, few veterinarians have been trained. Consequently, numerous methods are labeled 'participatory' but the principles and best practice of participatory inquiry are often overlooked. Another constraint is the pressure for academic researchers to publish in scientific journals, but the qualitative nature of participatory research is thought to prevent this. And finally, what are the opportunities for combining participatory methods with more conventional veterinary investigation and epidemiological methods in national PACE programmes?

Workshop objectives

The objectives of the workshop were as follows:

1. Obtain an overview of experiences with the use of participatory approaches and methods by veterinarians in the Greater Horn of Africa region.
2. Identify specific aspects of participatory methods in need of further research from a methodological perspective.
3. Define opportunities for the use of participatory methods by the Pan African Programme for the Control of Epizootics.
4. Make recommendations regarding 'best practice' use of participatory methods by veterinarians, including training needs.



Session 1

Overview of the origins, principles and methods of participatory epidemiology

Participatory Epidemiology: Setting the Scene

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Introduction

Simply stated, participatory epidemiology is the application of participatory rural appraisal techniques to the collection of epidemiologic information.

In the current era of globalisation, there is an increasing demand for animal health information. Internationally, the Sanitary and Phyto-Sanitary Agreement of the Global Agreement on Tariffs and Trade established science-based methods as the basis for livestock and livestock product trade decision-making. Countries are now required to provide data to substantiate their national animal health status relative to trade. This presents special problems for developing countries with remote and extensive agriculture systems. Remote and marginalized livestock populations are under-represented in service delivery and information systems. As a result, these populations suffer from the direct lack of services and pose epidemiologic risks to the national livestock population as a whole. The absence of current surveillance information on the animal health status of remote populations adversely affects export trade.
In the late 1980's Tufts University developed a thermostable vaccine against rinderpest and began implementation of a series of projects to introduce the use of the vaccine at both field and laboratory level as part of the OAU/IBAR Pan African Rinderpest Campaign (PARC). In the course of the rinderpest eradication effort, the need for alternative animal health delivery systems for remote, marginalized communities became apparent. This led to a programme of action research on community-based animal health delivery systems that included rinderpest control in a variety of communities in East and Central Africa. Nearly simultaneously, a major community-based animal health programme was set in motion by Tufts and Unicef to address the basic animal health and rinderpest vaccination needs of the communities affected by the complex emergency in southern Sudan.

As part of the process of designing these community-based programmes, participatory rural appraisal techniques were used to conduct needs assessments on animal health issues. The needs assessments focused on the following areas:

- Animal health problems and priorities
- Local veterinary knowledge and concepts
  - Disease vectors, reservoirs, epidemiologic understanding
  - Treatment
- Appropriate interventions
- Community structure, decision making and entry points

This information was used to formulate projects that directly addressed the perceived needs of the community through an appropriate combination of conventional approaches, local knowledge and community institutions. In the process, all those involved developed a tremendous respect for the extent of existing veterinary knowledge on the presentation and patterns of disease. This led to the identification of participatory epidemiology (PE) as an area of qualitative inquiry for further methodologic development and promotion as an appropriate technique for the rapid, effective, and economic collection of epidemiologic information.

Underlying concepts

Participatory approaches are founded on the philosophy that empowering beneficiaries to identify and overcome the challenges they are facing is the surest route to achieving sustainable development. The basic requirements for practitioners of participatory development are a respect for traditional knowledge, willingness to learn, and attitude of open-mindedness. The experts that apply participatory methods all come with technical educations and skills. The real value of these educations is not in providing universal models for development but in providing the tools to respond to new information in an innovative and constructive manner.

Participatory rural appraisal (PRA) is a qualitative intelligence gathering approach designed to rapidly

achieve a best-bet understanding of a situation as a basis for an action plan. It is a decision-oriented information collection and analysis process. A multi-disciplinary team of experts usually implements participatory rural appraisals. The PRA method provides a toolkit of techniques and activities that facilitate the exchange of information. The process is open-ended in that it allows the beneficiaries to provide direction to the information gathering process. This has been referred to as discovery and is based on the assumption that the appraisal team cannot and should not assume that they can anticipate all the issues and information that is important to understanding the situation. The process is participatory since the informants actually benefit from the information collection process. First, the data collection tools provide an opportunity for community self-realization through better visualization of their life and livelihood situations. Secondly, the information obtained though PRA is information for action that should result in interventions directly benefiting those who provided the data.

The participatory approach makes use of existing quantitative information and uses qualitative intelligence to fill the gaps between available data. It is perhaps important to note that quantitative data and the statistical methods used to analyse quantitative data cannot establish casual relations. They merely establish the probability of association between factors. It is in fact other qualitative information that is used to determine casual relationships and essential to the correct interpretation of quantitative data.

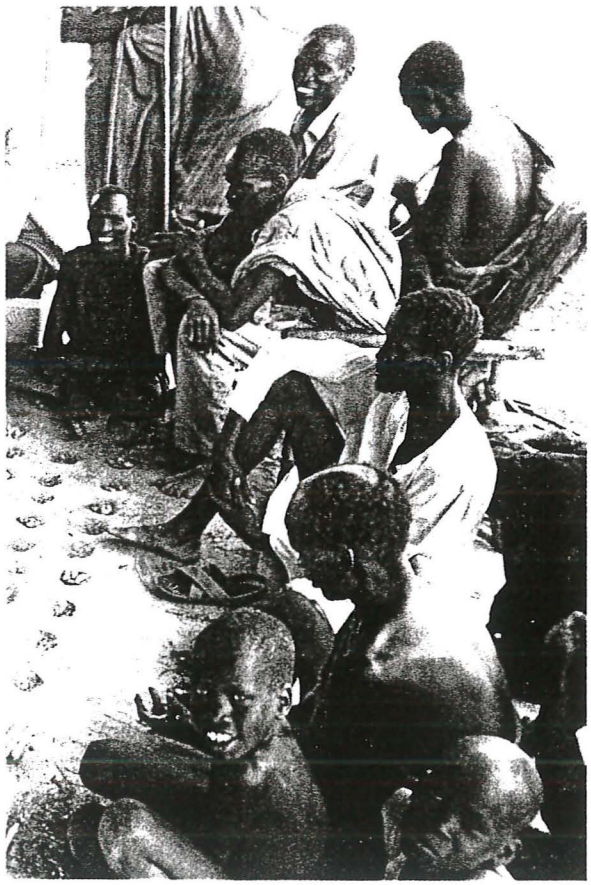
In the developing world, the high cost, complexity and lack of flexibility associated with quantitative studies has meant that the availability of quantitative data is very limited. In fact, the very scarcity of quantitative data implies that the data is not representative and has often meant that the information resulting from such studies is misleading.

The method of sampling in PRA studies is based on the principal of key informants rather than randomisation. The study actively seeks individuals who are likely to have specialized knowledge or a uniquely informative perspective on the issues under study. In the case PE, the study team actively seeks out livestock owners and traditional healers who are respected for their ability relative to animal health. Other types of key informants are traditional elders and community leaders who are directly involved in decision-making processes and have some authority to speak for the group. Finally, veterinary professional, international experts and individuals with expert knowledge about the sociology of the groups under study are frequently consulted.

The way qualitative data is assessed and validated is fundamentally different from quantitative data. In the quantitative world, statistics are used to calculate the probability that randomised information and associations are valid. Validation in the qualitative approach is based on weighing of evidence from diverse sources. This may include information derived from quantitative or laboratory-based testing. But PRA can make use of broader forms of experiential knowledge and information such as oral testimony and observations from samples of non-random key informants.

The tools of participatory epidemiology

Participatory epidemiology utilizes the PRA toolkit of methods. These methods may be grouped as secondary sources, direct observation, interview techniques, visualization techniques and methods of ranking and scoring.



Secondary sources

Secondary sources refer to existing literature, reports, maps and databases on the communities and issues under study. All good PRA studies begin with an inventory of secondary sources and a review of these sources.

Direct observation

The techniques of direct observation refer to observing the environment and daily activities of livestock owners. One of simplest starting points is to get out and walk through the village or cattle camp and surrounding pasture. Observe the condition of the people, livestock, housing and pasture. Note what plants are present. Try to be present for production activities like milking and note who is carrying-out the tasks and how they are completed.

Semi-structured interviews

One of the main tools of participatory epidemiology is the semi-structured interview. In semi-structured interviews, a checklist of subjects to be covered is used as a point of reference rather than a questionnaire. The interview team makes use of open-ended questions to allow participants the opportunity to introduce topics and issues. For example, after introductions, an opening question might be "What are the problems with your livestock?" As the participants introduce topics, probing questions are asked to obtain more detail and check information for internal consistency.

Visualisation techniques

The visualisation techniques include approaches such as map, Venn diagram, timeline and seasonal calendar construction. Mapping usually involves clearing an area of sand and sketching with sticks the relative location of key resource and strategies used by the community. This includes things such as grazing areas, cultivation areas, water sources, salt sources, woodlands, wild foods, wildlife, habitat of insect vectors of disease, friendly and unfriendly neighbours, trade routes, seasonal movements, and emergency movements. Using this approach, the appraisal team can very quickly obtain an overview of the area and the spatial distribution of key resources. In epidemiology, the spatial relationship between communities, their social relations and movement patterns go a long way towards determining livestock contact patterns and are key to understanding the epidemiology of infectious disease. Timelines and seasonal calendars are very powerful tools for describing the temporal patterns of disease in a location.

Ranking and scoring methods

Ranking and scoring refers to a group of techniques used to prioritise information or provide semi-quantitative estimates of the relative size or impact of categories as perceived by the participants. In ranking, the respondents are asked to place items in their order of priority. For example, if 5 diseases have been mentioned as problems, the interviewer requests that they be listed in order of importance. A more systematic alternative is pair-wise ranking where the respondents are asked to identify which is the more important disease of each possible combination of two diseases from the list. Proportional piling is very flexible technique in which respondents are asked to divide 100 objects such as seeds or stones into piles of sizes representing the relative size or importance of different categories. The number of objects in each pile is then counted to give a score. These exercises can be repeated in subsequent interviews and the results analysed statistically.

Data validation and analysis

In the process of data collection, the use of probing questions is an important quality control tool to assess the internal consistency of reports. Once a body of information is obtained from a series of interviews and data collection exercises, the information can be assessed through the process of triangulation. The term triangulation simply means comparing information obtained from multiple informants and multiple methods to look for patterns. If the information suggests a uniform conclusion then the interpretation is relatively straightforward. Occasionally, different groups of key informants may provide conflicting information. The study team must then consider how the differing perspectives of the informants impact the information obtained.

An important advantage of PE that provides a high degree of flexibility is iterative analysis. As the data is gathered, the study team can review the information available and refine the study hypotheses. They have the opportunity to include new questions or data collection exercises as a result of information discovered during the PRA process. A further form of analysis is participatory analysis. Once the study team feels they have a reasonable best-bet scenario that describes the situation, they can present that scenario back to the participants. The participants can then add, subtract or clarify information in the best-bet scenario.

Applications of participatory epidemiology

As was mentioned in the introduction, PE was first developed as a project needs assessment tool. It has also found application in animal health project monitoring and evaluation. The techniques can be used to track changes in disease impact over time as well as to collect the perceptions of beneficiaries and other stakeholders on the impact of the project, weaknesses and possible ways to improve performance.

Perhaps more importantly, PE has important applications as an epidemiologic surveillance tool in its own right. Participatory epidemiology has been adapted as a very successful method of targeted surveillance for rinderpest. In fact, a few low cost and relative sort-term PE studies have dramatically altered the conventional wisdom regarding the mechanisms of endemicity and spatial distribution of rinderpest in East Africa. This approach has been termed participatory disease searching (PDS).

Participatory disease searching

In PDS, the disease search team is interested in information on a specific disease but takes precautions not to communicate this interest to respondents. Questions are asked about general animal health concerns. If the target disease is identified as a problem, probing questions can be asked about the target disease in combination with other subjects. The investigation seeks to establish the history of the disease in a community and trace reports forwards and backwards in time. Often, herders guide the disease search team to active cases of disease that can then be confirmed by laboratory diagnostic methods. An example of a form of timeline, a bar chart illustrating rinderpest reports by from Somali herders, is presented in Figure 1. Note that Figure 1 illustrates the principal of triangulation. All the available independent reports form a coherent pattern with an inter-epidemic period of about 5 years.

Another promising application of PE is in the general disease surveillance. Community-based animal health programmes are in place in a number of countries and in some countries more than one thousand community-based animal health workers (CAHWs) are active. These programmes are important animal health information networks. Programme monitors debrief and re-supply CAHWs on a more or less monthly basis. The CAHWs are aware of major disease outbreaks and are a source of information about trends in endemic disease. Several appropriate techniques of sample collection such as dried blood on filter paper have been developed for both serological and genetic analysis. At present national disease surveillance systems have yet to create a framework to adequately utilize this important and sensitive source of disease information.

Efforts are now underway to combine participatory epidemiological approaches with more conventional forms of analytical epidemiology. To this end, the Community-based Animal Health and Participatory Epidemiology (CAPE) Unit has been supporting the use of PE as a method of collecting expert opinion for use in infectious disease modelling. Also, studies have been completed by the PAVE Project to validate existing veterinary knowledge as a form of epidemiologic data. The results of this work suggest that combinations of both participatory and analytic techniques yield an extremely powerful approach to the study of epidemiology.

Livestock keeping and indigenous knowledge in the Horn of Africa: Personal reflections on 25 years experience

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This paper focuses on one aspect of pastoralists - the ethnoveterinary knowledge (EVK) which has enabled them to scrape a living from a climatically hostile ecosystem for ages. The vehicle of survival has mainly been livestock keeping and the accumulated quantum of traditional knowledge is based on this livelihood. The paper goes on to highlights specific examples of EVK that pastoralists have acquired from time immemorial and recommends that veterinary epidemiologists open their attitudes in order to tap this EVK from pastoralists. This is particularly important during the last stages of rinderpest disease control and that is at the surveillance and disease search stages.

Introduction

The Horn of Africa is home to around 20 million pastoralists. In general, pastoralists' areas are places with unique characteristics that have produced unique constraints among its inhabitants (see Box opposite). It is these constraints that have hardened the inhabitants of these areas to withstand the rigors of harsh environmental conditions. When outsiders come to the Horn they are bound to complain of the harsh climate and wonder how the inhabitants can live with their livestock quite comfortably. In contrast, the real pastoralist finds everything normal because he or she has known no other environment since childhood. They have accumulated vast traditional knowledge and experience on the tactics of survival in these environments. That is why pastoralists are experts on issues of livestock keeping in their environments. To them, livestock keeping is the most reliable livelihood as it offers them the most successful coping strategies for survival. It is however unfortunate that most outsiders coming to the pastoral areas are not aware of the existence of such EVK among pastoralists. Some veterinary epidemiologists belong to this category.

The unique characteristics of the pastoralists areas

1. Harsh climate and rugged topography.
2. Remote, largely inaccessible by road and distant from public-and private-sector centralized services.
3. Movement in search of pasture and water is key to survival (satellite camps or kraals at Awi ; home site - Ere)
4. The pastoralists are often branded "unwilling to change" but they cannot afford the luxury of experiments offered by the outsiders.
5. Maintain traditional structures, - pillars of decision-making.
6. They have complex decision making processes
7. Suffer from colonial and post colonial isolation - marginalization
8. Still hanging on dependency syndrome of handouts and this has slowed down privatization efforts.
9. Insecurity due to civil conflict and the deadly cross-border raids.

The weakness of veterinary epidemiology in pastoralists areas

As noted above, many veterinary epidemiologists are not aware that pastoralists are well equipped with very valuable EVK and are unwilling to learn from these local experts. There are many reasons for this lack of awareness, but the most obvious is that they have not been formally trained in their institutions of learning about the pastoralists and their unique EVK. Worse still, they have not had any opportunity to learn it themselves in the field since most of them are not willing as pointed above. The question is why have they not taken the trouble to tap this knowledge among pastoralists and yet these livestock owners are so vital in the epidemiology and the eradication of livestock diseases in the Horn of Africa?

- One obvious reason is that most veterinary professionals come from outside the pastoralists' areas and they are therefore not keen to come closer to the pastoralists. They generally have negative attitudes towards these people.
- The other reason is that veterinary epidemiologists are trained to work with

sedentary herds using conventional approaches. They cannot accommodate the dynamics of pastoralists' areas and lack the inherent flexibility required to work in such areas.

- The veterinarians cannot therefore reach the traditional knowledge system (EVK) that is embedded in the cultural matrix of these people.
- These factors have contributed to the poor performance of veterinary service delivery in these unique areas, thus exacerbating the marginalization of the pastoralists.

These factors will continue to impact negatively on the surveillance stage of disease control programs.

Ethnoveterinary knowledge among pastoralists: some examples

Wherever they exist in Africa, pastoralists have tried to devise ways of living in harmony with their harsh environment. Broadly speaking these ways are many and diverse, and continue to be changed with time and with new challenges. A few examples of these traditional knowledge systems are given below.

Expert knowledge on range ecology

Pastoralists have learnt how to manage their fragile ecosystem. Despite the fact that they have been accused of causing widespread overgrazing and mismanagement of their production system, they are pleading innocence until proven guilty. This is because they are very knowledgeable about their land forms, soil and pasture types, and they know the capacities of their wells and most of the watering points. Knowledge about salty pastures, red or black soils found in rolling plains or at the shoulders of hills are examples of their ability to closely observe their ecosystems. In addition, pastoralists have designed grazing patterns that take into account the production capacity and the dynamics of their ecosystem for any given season.

One of the elements of a grazing pattern is movement. To a pastoralist and contrary to popular belief, nomadism is not haphazard but is a calculated response to cope up with hostile changes in one part of the grazing areas. It is a survival coping strategy that has developed with time. In the final analysis they are capable of managing their production system without damaging it. In fact, they accuse outsiders as the main cause of environmental degradation in pastoral areas. Pastoralists have devised even seasonal calendars for specific areas and use the stars to tell the beginning and end of a season. In addition, stars help them to foretell the severity of an impending drought!

Experts in obstetrics and animal reproduction

The most valued item in livestock keeping among pastoralists is milk. Pastoralists begin talking about milk the very day a cow is serviced by a bull. They know the pregnancy periods of all their domestic animals and they take care to monitor the days of pregnancy for each cow or camel. For example, a Turkana pastoralist knows that the gestation period for a camel is thirteen lunar months. He knows this from years of patient observation. And to make sure he does not forget when to start getting milk, each month that passes is recorded with a line drawn on the head stool until the thirteen lunar months have passed and the pregnant camel calves down.

Correcting cases of infertility

The reproductive capacity of any given animal is observed with keenness. For instance the anoestrus cows are taken to salty pastures for grazing. To a Turkana pastoralist, the salty grass will replace the missing salt and minerals which could include the phosphates. Pastoralists report positive responses as most of the cows returning from akicuar (meaning to quench the thirst for salt) actually come back pregnant. Some pastoralists also perform a surgery on the clitoris of heifers that have failed to become pregnant. When the tip of the clitoris is cut off slightly, the heifer is stimulated and eventually gets pregnant when served. It is not known as yet what happens but it is popular management of heifer infertility among most pastoralists.

Assisting calvings

All pastoralist know in one way or the other to help their cows to calve down. But at the same time there are people whom each community recognizes as the experts in handling the most difficult obstetrical cases. These are often consulted using a traditional fee.

Ability to communicate clearly

Most pastoralists are good orators but in any tree-of-men (Ekitoengikiliok in Turkana; Kokwo in Pokot) there are always expert communicators that the community has recognized as talented orators. These are the people who will be given the responsibility of repeating the discussion that goes on in the tree-of-men so that everybody will get the message clear and loud. This is a traditional skill which is unique to pastoralist communities and should be taken seriously by outsiders attempting to work with these communities.

Knowledge about pastoralist home economics

It is the pastoral woman who is the authority when it comes to the matters of food production in a pastoralists household. She has acquired the skills of an ant that gathers and stores during times of plenty to be used when things go bad. For instance most pastoralist women are skillful in drying milk during the wet season when there is surplus production. That powdered milk will be fed on mainly children when the drought becomes severe. Similarly some milk is cooked into ghee for use later. The desert fruits are also dried for the same purpose. The Somali women are particularly well known for preserving camel meat into nyirinyir (minced paste). It is a delicacy for Somali men and it adds love for his wife.

Livestock disease perceptions and etymology among pastoralists

A few examples are given to illustrate the livestock disease perception and etymology as given by various pastoral groups.

Blackquarter

This is a livestock disease that is recognized and accurately described by most pastoralists and agro-pastoralists. The Turkana pastoralists, call it lokichuma which literally means 'piercing pain' (from akicum meaning 'to pierce'). The description was borrowed from human feelings as the Turkana pastoralist watched, with imagined pain, the limping of the sick cow. The Fulani of Cameroon call this disease labba meaning the 'Devil's spear'. The Fulani believe that the lesion which causes the sick animal to limp came as a result of the animal being pierced by the Devil's spear which pierces the heavy muscles without physically cutting the hide. Similarly the Afar of Ethiopia name this disease harraymude where harra means 'forequarter' and mude means 'to pierce or to spear'.

Rinderpest

Rinderpest is a livestock disease that can cause very high mortality. The disease is endemic in specific inaccessible pastoralist areas in the sub-Saharan Africa. The names given to rinderpest by the various cattle keeping communities tell very vivid stories that can be very effective tools for awareness creation.

The Turkana give the traditional name for rinderpest as *lokiyo or loleeo*. The two names were derived by the Turkana pastoralists as follows. *Ngakiyo* in English means 'tears' and *lokiyo* denotes a livestock disease manifested by copious lacrimation and nasal discharges, involving very many cattle in herd and easily spreads to other neighboring herds in an outbreak fashion. It is the widespread lacrimation signaling a catastrophic episode or plague that stimulated the coinage of the name. The plague often involved not only cattle but even buffalo herds. In this case, when herders notice emaciated buffaloes they move their cattle away to avoid the disease. *Loleeo* is borrowed from their neighbours, the Karamojong, where that word means 'malicious'. The Turkana use the word to describe a unique type of pipe-stem diarrhoea which is watery and greenish brown.

The Fulani of Cameroon call rinderpest *pettu* which they like to a strong wind that destroys a lot of fruits when it passes through a laden mango or apple tree. The picture paints rinderpest as being capable of blowing through cattle herds, leaving them dead. The Afar of Ethiopia, call rinderpest *degahabe* which means 'empty kraal' - it comes from the expression *geso foyas habe* which means 'the kraal of cattle is empty'.

The Dinker Rek and Dinker Boor of southern Sudan call rinderpest *awet* or *nyan tek*. The word *awet* comes from wet piny, which in Dinka Rek means to scatter down like a hen that scatters the sorghum grain when it is fed in a container. The older Dinka compared this observation to a disease, which scatters down cattle. The Dinka Bor called it *nyan tek* meaning 'one calf remains'. This indicates the manner in which rinderpest kills all the cattle, leaving only one or a few animals to become immune to the disease.

The Latuko of southern Sudan give to rinderpest the name *lopirit*. This is derived from the word *pirit*, referring to the speed at which a fluid is emitted. When the expression is used to describe a disease in cattle, it refers to projectile emission of watery faeces.

All the above people are aware of the presence of modern vaccines and admit that they have no treatment of their own. However, they do have sophisticated quarantine procedures, which they put into effect during outbreaks.

Trypanosomiasis

The disease is common in many pastoral and agro-pastrol areas. The main vector being the tsetse fly though biting flies contribute by mechanical transmission. This protozoan disease affects all domestic animal but the examples given here are mainly from cattle.

The Turkana of Kenya and the Toposa of southern Sudan call trypanosomiasis in cattle *lokipi*. The name comes from *ngakipi* which means 'water'. This

word describes the disease of cattle which is characterized by widespread oedema in the body of the affected animal, during the final stage of a wasting condition. The carcass literally quenches fire and releases a lot of smoke when roasted.

The Didinga and Latuko of southern Sudan call trypanosomiasis *lobi*. The word *lobi* in the two tribal groups describes gradual loss of body condition of the affected cow. The disease is spread by the tsetse fly (called *lolir* in Latukol and *ikirongit* in Didinga).

The Nuer of southern Sudan call trypanosomiasis *liey/guaw* and they derive these two names from *liy* meaning stealing slowly, like something is secretly removing something from inside the animal which becomes thin. *Guaw* is a cattle disease characterized by gradual loss of condition, periodic fever, sunken eyes, lacrimation and photophobia. Frequently these animals seek shade and have hair loss in from their tails.

In nearly all cases the pastoralists have been exposed to modern trypanocidal drugs, such as ethidium bromide. They associate the effectiveness of these modern drugs with their local terms for trypanosomiasis , thus indicating they are correct in their diagnosis. There is some evidence that the local names which describe wasting diseases (e.g. in southern Sudan) may in fact be a combination of several diseases such as combined infection of liver fluke with trypanosomiasis.

Disease diagnosis and use of traditional remedies

These few examples of livestock disease perceptions by the pastoralists show that pastoralists are very good in diagnosing livestock disease entities in their traditional way. In fact, when discussing the Turkana classification of livestock diseases Ohta (1984) stated that *"They classify the conspicuous uncommonness visible on the animal"*. In other words the Turkana identify what they believe are defining symptoms and name the disease accordingly. It is after diagnosing that they indicate traditional remedies for these disease entities. All pastoral groups in sub-saharan Africa express this ability with pride.

In both East and West Africa traditional medications are well known and discussed freely. For instance the Fulani known as the WodaBee in Niger and the Taureg in Niger are skillful in vaccinating their cattle against contagious bovine pleural pneumonia (CBPP) by placing a piece of infected lung from a cow that has died of CBPP into a fold of slit skin on the side of the nose of cattle to be vaccinated (Stem, 1996).

Conclusions

As indicated above, pastoralists have accumulated a vast amount of traditional knowledge that has enabled them to utilize livestock keeping as a viable livelihood. It is now up to us to open ourselves to tap this EVK in order to enrich modern epidemiology. This will entail a complete change of attitudes on our side as professionals and a move closer to the grassroots where the custodians of that knowledge reside. It means we have to reseek the people, accept nomadism as a coping strategy for survival rather than viewed it as unnecessary loitering by those people, that we become flexible and broad minded instead of being the rigid veterinarians that we have been accused of, and that we should be prepared to learn the livestock disease perceptions of the livestock owners and the way disease names are derived from the socio-cultural backgrounds. This is particularly important at the last stages of rinderpest disease control and that is at the surveillance and disease search stages. Pastoralists ability to identify and describe accurately the livestock diseases will be a real asset. This is because this people will hardly miss a case!

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Session 2

Issues affecting the wider use of participatory epidemiology

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Introduction

This session was introduced by reference to a survey of veterinary uses of participatory appraisal in Africa conducted in 1998-1999[1].
The survey targeted veterinarians and used a questionnaire to assess:

- Understanding of participatory approaches and methods
- Veterinary uses of participatory methods
- Perceptions on strengths and weaknesses of participatory methods

The questionnaire was administered to Directors of Veterinary Services, PARC National Coordinators, Deans of African veterinary schools, veterinarians working with major donors, NGOs, research centers and international agencies. The response rate was 28.6% (50 responses from 175 questionnaires administered). Response rates varied from 15.6% from government-employed veterinarians to 47.6% from veterinarians employed by NGOs. Some of the results were presented as summarized below.

Table 2.1
The main advantages of participatory appraisal as perceived by veterinarians working in Africa

Advantages	Number of times advantages cited
Aimed at community priorities and context	23
Inclusive; includes all social groups in the community	12
Improves relationships, trust and rapport between outsiders and communities	11
Rapid	10
Results reached and decisions made by consensus	8
Inexpensive because uses local resources	7
Encourages community-level problem solving	5
Promotes indigenous technical knowledge	5
Increase local, community ownership of projects	5
Enables outsiders to learn about communities	5

Table 2.2
The main disadvantages of participatory appraisal as perceived by veterinarians working in Africa

Disadvantages	Number of times disadvantages cited
Time consuming	17
Generates qualitative data	11
Requires high resources	9
Language/translation problems at field	8
Requires much patience on the part of the facilitators	5
Manipulation by project to achieve it's own aims	5
Seen as a panacea data collection method by donors	4
Requires very skilled facilitators	3
Unpopular with central decision-makers in government	3
Improper use of tools	3

[1] Catley, A. (1999). The use of participatory appraisal by veterinarians in Africa. Office International des Epizooties Scientific and Technical Review, 19 (3), 702-714.

Table 2.3
The main constraints to the use of participatory appraisal by veterinarians working in Africa

Constraints to usage	Number of times constraints cited
Lack of financial resources	13
Lack of suitable training courses	13
Lack of time to attend training	12
Poor acceptance and negative attitudes among veterinarians	6
Lack of relevant literature and training manuals	4
Logistical problems	3
Lack of forum to share experiences	3
No facilities to cross-check data using conventional means	2
Poor public awareness of the approach	2
External constraints e.g. conflict, food shortages	2

It was suggested that a number of issues arising for the survey should form the basis for further discussion by workshop participants. These issues were:

Issue 1 The use of qualitative versus quantitative methods
Issue 2 Methodological issues
Issue 3 Training and learning issues

Issue 1
Qualitative versus quantitative methods

To discuss this issue, participants were divided into five working groups and each group was asked to identify the strengths and weakness of qualitative, quantitative and combined qualitative-quantitative methods. The results from the working groups are summarized in Table 2.4 opposite. The facilitator expanded on some of these points as follows:

Quantitative methods

- Quantitative methods assume that the world can be described using facts that are discovered using objective research. The approach focuses on instrumental knowledge
- Objective, quantitative research is based on methods that separate the object of inquiry from investigating subject
- This requires a complex world to be compartmentalised into manageable units, which can be controlled, manipulated and studied.
- Judged according to four main criteria viz. internal validity; external validity; objectivity and reliability
- Issues of validity and reliability are usually addressed at the design stage of the research, using techniques such as random sampling, selection of appropriate sample sizes and use of controls. This approach enables the use of probability statements to describe associations in large populations.

In the 'hard science' establishment, quantitative methods are strongly associated with 'good science'.

Qualitative methods

- In comparison with quantitative research, qualitative research often aims to understand relationships in a specific, often localised context.
- Therefore, qualitative research does not seek to extrapolate research findings to a larger population.
- Often aims to understand critical or interactive knowledge.
- Uses inductive research methods; sources of error cannot always be predicted at the onset.
- Validity based on triangulation of data - comparison of results arising from different methods and informants.
- Validity is highly dependent on the skill of the researcher and their capacity to cross-check information as it emerges.

Table 2.4
Working Group perceptions of quantitative and qualitative methods

	Strengths	Weaknesses
Quantitative	Reliable and repeatable Statistical tools well-developed Proven, well-tested methods Technical qualified people available Widely accepted by decision makers, policy makers and academics Objective Auditable Allows direct comparison Representative Easy to interpret and extrapolate More in-depth statistical analysis Defined methods available to test specific questions More accepted as "proof"	Expensive and boring Long time frames required Difficult to sustain Requires a lot manpower Highly trained people Logistically difficult Techniques can be used inappropriately Less flexible Not easily understandable Feedback to communities difficult Limited attention to indigenous knowledge Less community involvement/ownership Interpretation difficult without background qualitative information
Qualitative	More participatory More sustainable and interesting Multidisciplinary and multidimensional More information than numbers alone Quick Better for feeding back to people; supports quick implementation of findings Indigenous knowledge Individual observations from local knowledge has significant Demands few resources Community and interviewer gains from process Discover unexpected, useful information Takes care of farmer circumstance Establishing ownership Broad issue Understand remote communities More sociality acceptable	Subjective Not accepted as a strong method e.g. by decision makers Requires trained people Transaction concerns Difficult to audit Difficult to quantify information Need of local knowledge and language Analyses tools not well developed Standardization often poor Lack of best practice rules Not everyone can do PRA (even when trained) May lack repeatability and comparability Lack of awareness of participatory methods among policy makers other stakeholders
Combination	More reliable More sustainable Less manpower Broader participation More realistic - most of time this in fact happening Can help to rule out weaknesses of qualitative and quantitative approaches More acceptable by donor countries More accepted by community and people improved "Best of both approaches" Allows participations of different types of expertise More verification possible	Expensive Required long-term commitment and resources

Issue 2
Methodological features of participatory inquiry

This session focused on three aspects of participatory epidemiology which are commonly misunderstood.

Confusion with questionnaires

Some workers consider the methods of participatory epidemiology to be "just like a questionnaire". However, an important influence on the development of participatory methods was dissatisfaction with questionnaire surveys among development workers. Questionnaires were often difficult to design and administer, and were based on the priorities and perceptions of researchers, rather than local people. Although best-practice guidelines for using questionnaires were available, they were rarely followed. For example, pretesting of questionnaires was often overlooked and the problem of non-sampling errors was usually ignored. Possible confusion over use of language, particularly translation of technical terms, was another issue.

In remote areas, pretesting of questionnaires can be logistically difficult and time consuming. Similarly, after the administration of questionnaires and collection of data, the analysis is often conducted back in the laboratory or office. This means that if discrepancies or unusual information arises during the analysis, it is difficult to verify the original data.

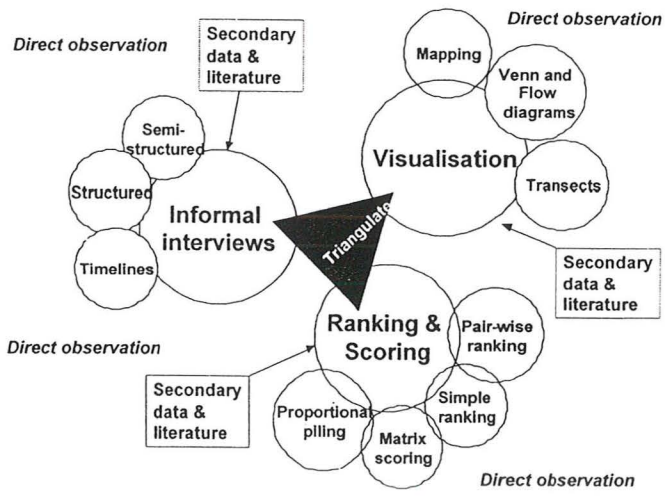
In part, participatory inquiry attempts to overcome some of the problems of questionnaires. Typically, local priorities are discussed using local language and disease terms. The overall approach is not to ask standard questions to a set number of people, but to explore and analyse issues and follow-up interesting leads. In other words, the approach is open-ended and flexible.

Triangulation

An important feature of participatory epidemiology is the use of different methods with different informants. Some of the most commonly used methods are summarised in Figure 1 and comprise three main groups - interviewing, visualization and ranking (and scoring). These three groups of methods are complemented by reference to secondary sources (reports, literature) and direct observation in the field. Information derived from all these sources is then combined and cross-checked to build a picture of the issues under investigation.

This process is similar to clinical veterinary inquiry. When visiting a farm, a veterinarian observes the conditions on the farm and the animals, and cross-checks these observations with information provided by the farmer. Similarly, when examining sick livestock the clinician is constantly comparing what is detected visually (or with a thermometer or stethoscope) with the description provided by the livestock keeper. As the investigation proceeds, samples might be taken for laboratory tests. Therefore, a combination of direct observation, owner interview, clinical examination and laboratory tests help the veterinarian to reach a diagnosis - this is an example of triangulation. In participatory epidemiology, triangulation is important because it helps to ensure the validity and reliability of findings. The process requires practitioners to be constantly aware of why a particular method is being used and how results will be compared with results derived from other methods. Also, when compiling reports it is necessary to describe how information from different sources and methods was combined to give "the diagnosis" and make recommendations.

Figure 1
The methods of participatory epidemiology



"Participatory methods are qualitative, so we can't publish the work"

While the qualitative nature of participatory epidemiology is clearly a concern for many veterinarians, it seems to be a particular problem for academics and researchers. The perception seems to be that unless research involves the collection of numerical data and presents some statistical summary or analysis, findings cannot be published in journals. When researchers are judged within a "publish or perish" culture, they favour conventional methods which are known and accepted by their peers and reviewers for scientific journals.

When considering this issue, two points were made:

- It is possible to describe many subjective opinions using numbers. For example, preference ranking requires an informant to assign numerical ranks to items or issues to demonstrate their preferences. In veterinary medicine, we commonly use body condition scores to summarise a subjective assessment of an animal's condition. Similarly, we can assign ranks or scores to lesions or clinical observations.
- By standardizing a ranking or scoring method, and then repeating the method, we produce numerical data that can be summarized using common and simple statistical methods.

In participatory epidemiology, ranking and scoring methods produce numerical data at an early stage in the method. Typically, within a particular survey these methods have been used as 'one-off' methods. For example, the results below show how one group of farmers ranked livestock diseases in terms of morbidity and mortality[2].

Scoring of livestock diseases in Abela Sipa, North Omo, Ethiopia

Disease	Mortality	Morbility
trypanosomiasis	*****(5)	*********(9)
anthrax	********(8)	****(4)
blackleg	********(8)	****(4)
ticks and tick-borne disease	**(2)	*******(7)
internal parasites	- (0)	********(8)

Note: A group of 12 male farmers were asked to score the five most important diseases in Abela Sipa peasant association out of 10, in terms of mortality and morbility.

[2] IIED and Farm Africa (1991). Farmer Participatory Research in North Omo, Ethiopia: Report of a Training Course in Rapid Rural Appraisal. International Institute for Environment and Development, London.

Participatory methods such as proportional piling can be easily standardized to understand local perceptions of disease incidence.

Example

Use of proportional piling to estimate incidence of cattle diseases in Tana River District, Kenya[3]

As part of participatory research project on bovine trypanosomiasis, a proportional piling method was developed to understand local perceptions of the relative incidence of livestock diseases in different age groups of cattle during the preceding 12-month period. Interviews with Orma informants indicated that their cattle were categorised by age group as *jabie* (calves to weaning age; 0-2 years of age), *waela* (weaner group, 2-3 years old), *goromsa* (young adult stock, including heifers and young bulls; age group 3 to 4 years) and *hawicha* (adult stock, particularly the milking cows kept around the permanent villages; > 4 years of age).

Using a pile of 100 stones to depict each age group, the stones were divided by informants into 'sick cattle during the last year' and 'healthy cattle during the last year'. The pile of stones representing sick cattle was then sub-divided by informants to show the relative numbers of cattle suffering from *gandil*/trypanosomiasis, *hoyalel*/foot and mouth disease, *buku*/acute haemorrhagic trypanosomiasis, *sombal* CBPP, *madobesal* rinderpest and 'other diseases'. The method was repeated with 50 Orma pastoralists. An example of the kind of information arising from this method is presented in Figures 2 and 3 overleaf.

Important features of this proportional piling method were:

- Relationships between local disease names and veterinary terminology had been previously determined using other participatory methods, such as matrix scoring of disease signs supported by comparisons of local disease descriptions with standard veterinary textbook descriptions.
- This method was thought to be superior to questionnaires, because,
  - local terminology was used for the diseases and cattle age groups;
  - the comparison of different diseases reduced exaggeration;
  - the piling process was partly visual i.e. informants could see representations of sick

[3] Catley, A., Irungu, P., Simiyu, K., Dadye, J. Mwakio, W., Kiragu J. and Nyamwaro, S.O. (2002). Participatory investigations of bovine trypanosomiasis in Tana River District, Kenya. Medical and Veterinary Entomology, 16, 1-12.

cattle (whereas a questionnaire involves only verbal communication);
- the method is flexible and informants can move stones between piles until they're comfortable with their responses;
- responses can be checked and probed using open questions.

However, there are also potential pitfalls when using this type of method:

- it requires very careful training of researchers and epidemiologists;
- there is a strong tendency to focus on "collecting the numbers" rather than following up results with probing questions;
- there is a strong tendency for researchers to record only the numbers, rather than also write notes on the following discussion.

Summary

In summary, participatory epidemiology involves:
- an approach and toolkit of methods that vary considerably from questionnaires;
- the use of interviewing, diagramming and scoring tools supported by reference to secondary literature and direct observation, leading to immediate field-level triangulation of data;
- if required, some standardization and repetition of methods to produce numerical data.

Examples of research publications based on participatory methods were distributed to workshops participants.

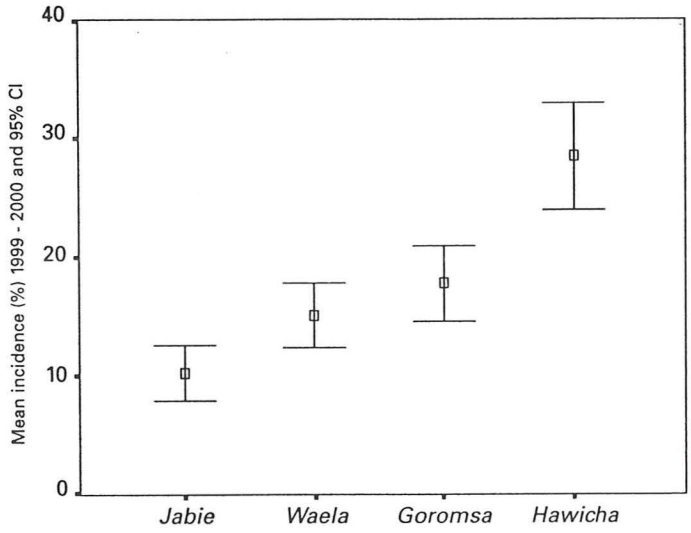


Figure 2
Estimated annual incidence of bovine trypanosomiasis *(gandi)* by age group

Age groups:
Jabie, 0-2 years
Waela, 2-3 years
Goromsa, 3-4 years
Hawicha, > 4 years

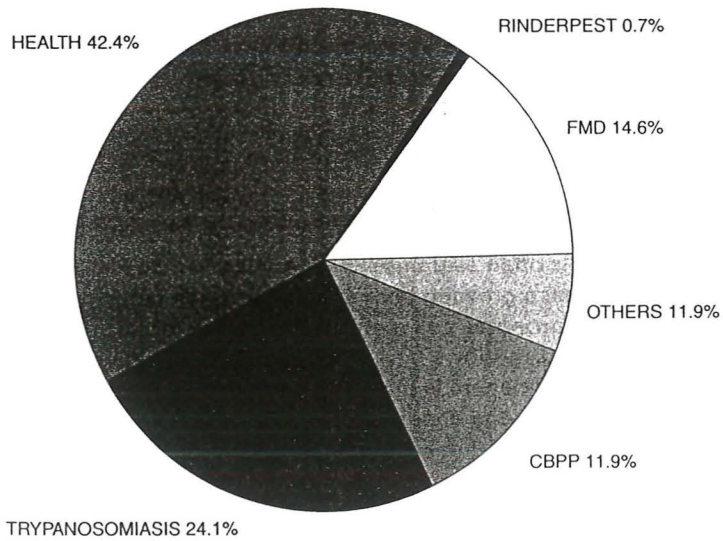


Figure 3
Estimated mean incidence of cattle diseases relative to healthy cattle, all age groups, 1999 - 2000

Issue 3
Training and learning in participatory epidemiology

Training Courses

The rapid growth of RRA and PRA in development work has been accompanied by the emergence of numerous training courses. These courses vary considerably in their content, training methodology, duration and trainer experience. During the workshop, a training course in participatory epidemiology for veterinarians was proposed based on the courses run by the International Institute for Environment and Development and the Institute of Development Studies in the late 1980s and 1990s. These courses included initial classroom-based sessions followed by field practice. The length of the courses was around 10 days.

Therefore, the proposed training course in participatory epidemiology comprised the following sessions:

Outline of an Introductory Training Course in Participatory Epidemiology

Session 1: Origins of participatory approaches and methods
Farming Systems Research
Applied Anthropology
Adult Education Movement
Agroecosystem Analysis
Rapid Rural Appraisal

Session 2: Concepts of community participation in development
Historical background to community participation
Meanings of community participation
Examples of applications, uses and abuses

Session 3: "Rural Development Tourism" Spatial bias
Temporal bias
Project bias
Diplomatic bias
Person bias
Professional bias

Session 4: Key features of participatory epidemiology
Attitudes and behaviour of practitioners
Mixed methods- participatory and conventional
Secondary data
Managing groups
Key informants
Triangulation
Optimal ignorance

Session 5: Methods - interviewing methods Principles of informal interviewing
Use of open and probing questions
Use of checklists - written and mental
Examples from veterinary epidemiology
Practical sessions

Session 6: Visualisation methods - participatory mapping
Priniciples of mapping
Types of maps (social, natural resource, movement etc.)
Examples of maps used in epidemiology
Practical sessions

Session 7: Visualisation methods - Seasonal Calendars
Principles and methodologies
Examples from epidemiology
Practical sessions

Session 8: Ranking and scoring methods
Principles of ranking and scoring
Types of ranking and scoring
Examples from epidemiology
Practical sessions

Session 9: Summarising and analysing data
How to handle ranks and scores
Statistical tests for non parametric data
Assessing agreement between informants
Multidimensional scaling, GPA, correspondence analysis and other methods

Field practice: Five days in the field
This is crucial!
Provides opportunity to practice methods and address any misunderstandings
Summarise and analyse data - in the field
Feedback and cross-check findings
Evaluation of methods
Write report

Who To Train?

It is often said that 'not everyone can do PRA'. In fact, a growing body of experience in participatory approaches and methods in various technical sectors shows how the attitudes and behaviour of practitioners is probably more important than their knowledge about specific methods. This experience indicates that certain types of people feel more comfortable with PRA than others and are more successful at applying the approach.

In order to prompt discussion on the characteristics of a 'good participatory epidemiologist', Jeffrey Mariner introduced participants to the Briggs Myers Personality Type. This system helps to characterise people by personality type and is used by various organizations to assign tasks to staff with particular attributes.

At its most basic level, the Briggs Myers uses the following characteristics:

Extrovert (E)	Introvert (I)
Sensing (S)	intuition (N)
Thinking (T)	Feeling (F)
Judging (J)	Perceiving (P)

These characteristics are explored through a series of questions:

1. **Where do you direct your energy?**
- To the outer world of activity, and spoken words?
- To the inner world of thought and emotions?

Characterisitics associated with extrovert verses introvert people are as follows:

Extroversion	**Introversion**
Social	Private
Expressive	Quiet
Many	Few
Broad	Deep
Interaction	Concentration
Outward	Inward
Action before thought	Thought before action

2. **How do you process information?**
- In the form of known facts and familiar terms?
- In the form of possibilities or new potential?

Sensing	**Intuition**
Facts	Patterns
Experience	Novelty
Present	Future
Practicality	Aspiration
Enjoyment	Development
Realism	Idealism
Using	Changing

3. **How do you make decisions?**
- On the basis of logic and objective considerations?
- On the basis of personal values?

Thinking	**Feeling**
Analysing	Sympathising
Objective	Subjective
Logical	Personal
Criticism	Appreciation
Onlooker	Participant
Decides on principle	Decides using values
Long term view	Immediate view

4. **How do you prefer to organise your life?**
- In a structured way, making decisions and knowing where you stand?
- In a flexible way, discovering life as you go along?

Judgement	**Perception**
Close	Open
Decide	Explore
Structure	Meander
Organise	Inquire
Firmness	Flexibility
Control	Spontaneity

Although there wasn't enough time during the workshop for a thorough discussion on this personality test, the key point was that different people have different characteristics and behaviours. For epidemiologists, some people are instinctively more at ease when dealing with objective data and 'black and white' situations whereas other people seek to understand grey areas and can cope easily with uncertainty. Similarly, some researchers prefer the structure of a pre-ordered learning process but others prefer open-ended inquiry and like to respond to new information as it arises.

Recognition of these kinds of attributes together with communication skills can assist senior managers to identify staff who are most likely to benefit from training in PE and apply the approaches and methods effectively in the field. Such people are usually natural and relaxed communicators, observant of local customs and norms, and respectful of other people's views.

How can participatory epidemiology assist PACE?

Participatory Disease Modelling

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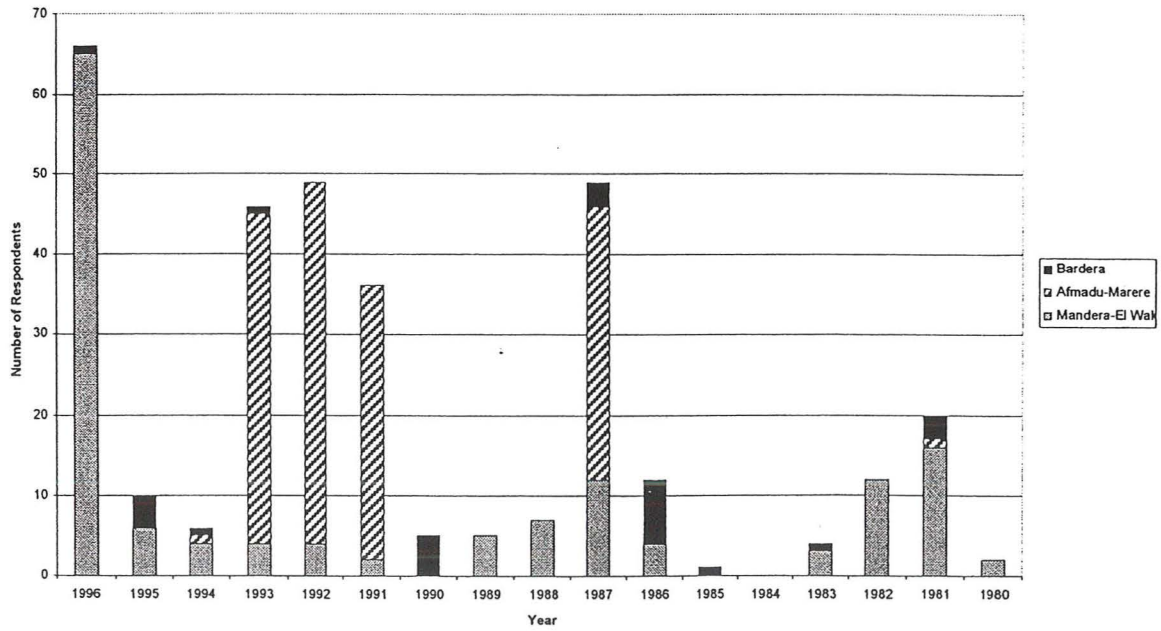
Infectious disease modelling relies upon quantitative data and expert opinion to make parameter estimates. In conventional disease modelling experts include epidemiologists and microbiologists. This paper describes a state-transition model of rinderpest transmission dynamics in East Africa. The model differs from previous rinderpest models and disease models in general in that the knowledge of the owners of the livestock populations being modelled is utilized as expert opinion to derive parameter estimates and validate the model.

Participatory epidemiologic tools were utilized to estimate population demographics, rinderpest mortality rates, population contact structure and inter-epidemic periods. Published laboratory inoculation data was used to estimate latency and infectious period. The basic reproductive number was derived from serologic data obtained during periods of endemic stability. The estimates of basic reproductive number and infectious period were in turn used to estimate effective contact rates. The model was validated by comparing the predicted epidemic curves with historic information provided by farmers on the actual temporal patterns of outbreaks in two different endemic scenarios.

The model is a simple, open population SEIR state transition model that incorporates stochastic elements when transmission levels are low. The structure of the model is presented in Figure 1. The model incorporates vaccination as either a continuous or a seasonally pulsed process.

Rinderpest is southern Sudan is caused by moderately virulent rinderpest virus from African lineage 1. In Somali, a mild form of rinderpest due to Africa lineage 2 is believed to be present. The model successfully reproduces the endemic

Figure 1
Temporal distribution of herder reports of rinderpest in Somali ethnic areas of East Africa: 1980-1996



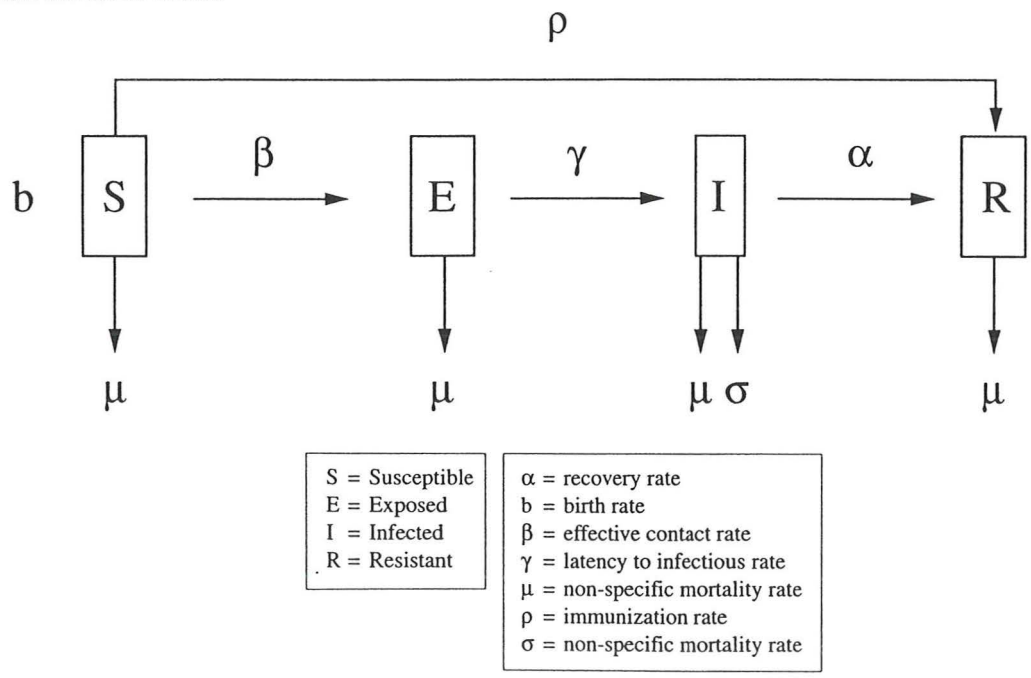
patterns of disease for both southern Sudan and Somalia when appropriate sets of parameters are entered to reflect the differences in predominant rinderpest lineages.

Model experimentation has been completed to assess the impact of different vaccination strategies on the probability of disease eradication. Sub-optimal rates of vaccination decrease overall mortality but increase the temporal duration of outbreaks. A threshold effect is evident where moderate levels of initial vaccinal population immunity predispose populations to endemic persistence of rinderpest following a disease introduction.

The outputs of the model include annual population, prevalence, incidence, mortality and herd immunity and vaccination. These output parameters can utilized in economic consequence modelling and form the basis for cost-benefit analysis of alternative control and eradication strategies.

This participatory approach to disease modelling demonstrates the power of appropriate combinations of qualitative participatory and quantitative analytical epidemiology. This epidemiologic analysis is entirely grounded in an intimate understanding of the field dynamics of rinderpest in the remote and insecure locations were the disease is presently persisting. Such analysis would not be possible without the direct aid of livestock owner's knowledge to both inform and validate the process.

Figure 2
Rinderpest model structure



Participatory Epidemiology and Disease Surveillance

This session was introduced with a brief discussion to establish a consensus on the meaning of the term surveillance and some of the different types of surveillance. The discussion group agreed that surveillance was described by the following phrases:

- the collection of information for action,
- an on-going or continuous process,
- information about events
- the detection of events
- feedback to information to providers and effective response

The group distinguished between general surveillance, where information is collected on a number of disease or health events and targeted surveillance, where information is collected on a specific disease as part of a control strategy. The terms passive and active were also mentioned as two categories of surveillance. It was stated that passive surveillance was the routine collection of information as part of the normal day-to day activities of the field surveillance. Active surveillance involves some form of outreach to encourage reporting or actually to collect data in the field.

After presentations on general and targeted disease surveillance, a discussion was held where participants stressed the importance of community-based animal health networks as information resources for national disease surveillance networks. It was noted that CAHW networks have been implemented by government, projects and NGOs. The debate centered on how best to incorporate CAHW networks into the surveillance system. Government veterinarians expressed their frustration at the lack of communication between veterinary services (VS) and project and NGO-based animal health programmes. It was noted that many projects and NGOs had made concerted efforts to involve veterinary services, but in the absence of a policy framework and operating system, it was difficult for CAHW networks to access the national systems.

The following points were made:

- CAHWs are farmers and have the right to make disease reports.
- Monthly monitoring of CAHWs is an important animal health information resource.
- A communication gap exists between farmers and veterinary services.
- VS have no stated policy on the use of CAHW networks as information resources.
- VS have not put in place a system to collect animal health information from CAHW networks.
- NGOs are usually registered and involve local VS staff in training and monitoring activities at the NGOs expense.
- Higher levels of the veterinary service are often not aware of the activities of their field veterinarians in CAHW networks as the veterinary service do not have systems in place to monitor and coordinate NGO and project-based animal health activities.
- Effective feedback of summarized information to data providers (CAHW monitors, CAHWs, and livestock owners) is key to the sustained success of any programme.

It was the consensus of the discussion that all stakeholder were willing and motivated to work towards integration of community animal health into the national service delivery and surveillance systems. It was agreed that stakeholder workshops should be held to renew dialogue on the basis of mutual respect between the VS, projects, NGOs, profession and livestock owners. The objective should be to establish a positive and productive framework for animal health information exchange.

Experiences with assessing and quantifying disease surveillance information for small ruminants as obtained through the Nomadic Animal Health Auxiliary System (NAHA-System) in the Central Rangelands of Somalia

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Disease surveillance data were collected during 4 visits to 21 Nomadic Animals Health Auxiliaries (NAHA) from 7 villages/degaans[4] (Halgan, Jameeco Muktar, Bulo Burti, Biyo Neef, Aboorey, Maxas, Maqokorey) in Bulo Burti (B/B) district of Hiraan Region from February 1987 to April 1988 using customized data recording sheets.

In an attempt to identify the disease situation as encountered and reported by the NAHAs and to quantify such disease information the following analytical steps were taken:
First, the common Somali terms used for small ruminant diseases and symptoms in the study district were noted and congruency with scientific terminology determined.

Then, the occurrence of a disease/symptom was expressed by the number of animals treated/ affected (numerator) and the number of flocks harbouring animals treated/affected (denominator) to calculated the average number of animals affected in a flock affected. As flock sizes vary within the district the average flock sizes of 163 in B/B district was used as denominator (and the factor 100 included) to calculate the percentage average animals affected in an average flock. This flock disease index (FDI) served as a measure to quantify a disease as an individual animal problem or a flock problem, and, thus broken down into the following categories, i.e. >0 - 5%, >5 - 10%, >10 - 20%, >20 -30%, >30 - 40%, >40 - 50% and >50%.

For the disease data reported differentiation was made between the active involvement of the NAHA i.e. inspection and/or treatment of diseased animals, and his role as mediator for disease intelligence evolving from his pastoral community.

[4] The traditionally managed communal grazing area of about 1000 to 3000 km2

Reporting periods for each visit were the preceding months whereby the following calender-wise classification for the four different climatic seasons Gu (long rainy season) from March 22 to June 21, Hagaa (short dry season) from June 22 to September 21, Dayr (short rainy season) from September 22 to December 21, and Jilaal (long dry season) from December 22 to March 21, was applied. Within the district villages/degaans were grouped into ecological sub-zones, i.e. "Inland" (Maxas, Maqokorey, Aboorey and Nooleye) and "Riverine" (Bulo Burti, Biyo Neef, Jameeco Muktar, Halgan). The age of treated/affected animals was classified according to age groups (0 -1 year, 1.1 - 2 years, over 2 years).

The case fatality rate of a disease was assessed by asking the following question: "If 10 animals are affected by the disease, how many will die without treatment ?" and expressed in percent. To enable differential diagnosis and to allow for a more detailed disease description the immune status (after recovery) of the animals was inquired and recorded as immune (= yes = more than 50% of the animals affected) or not-immune (= no = less than 50% of the animals affected). The effectiveness of the drugs applied did also enter the data collection.

The existing confusion for different locally used Somali terms for single diseases, disease syndromes or gross symptoms in sheep and goats, even at the village/degaan level, could be demonstrated. For instance, the vernacular terms Sambab (literally: lung) and Agmar are considered to stand for pneumonia, which again was often synonymous for CCPP.

To deepen the understanding of certain diseases or disease complexes of small ruminants such as Qanje (literally: lymph node), but also termed as Tu or Riimiye in some villages/degaan, oral reports given by the NAHAs on symptoms and post-mortem findings were listed and broken down by village/degaan.

Flock disease indices for ecological sub-zones demonstrated and quantified the importance of Sambab in all villages/degaan of B/B district with a marked higher FDI in the "Inland" degaan of Maxas, where Qanje also seemed to play a prominent role.

Endoparasites and cases of diarrhoea appeared with higher "prevalences" in the ecological sub-zone characterised as "Inland" than in the "Riverine" sub-zone. A disease such as FMD in small ruminants seemed to be restricted to individual villages/degaan, e.g. being endemic in Aboorey and, thus, not causing serious losses.

Sambab, the most prominent disease in B/B district, is a dry season disease; over 80% of the cases reported and treated by NAHAs occurred in the dry seasons Jilaal and Hagaa. The FDI in roughly half of the cases ranged between 5% and 10%. However, in a single flock up to 60% of the animals were found affected. Sambab case fatality rates showed a wide range believed to be likely due to different pneumonia-causing agents and strains. In all cases reported and treated sheep and goats over 2 years of age were attacked. Young stock (less or equal to 1 year) played obviously a minor role. The full effectiveness of the antibiotic Oxytetracyclin could be demonstrated.

A coincidence of anthelmintic treatments asked for by flock owners with wet and humid climatic conditions leading to a rise in endoparasites of sheep and goats could be shown. In half of the flocks 5% to 10% of the animals were considered to deserve anthelmintic treatment by the NAHAs. However, a good numer of anthelmintics sold to and administered by the flock owners themselves reflected the demand for appropriate and effective anthelminthics.

In order not to loose potential information observations regarding diarrhoea, though low in number, were recorded separately. A trend of likely occurrence of diarrhoea - a symptom, not a disease itself - in dry seasons was apparent.

For the first time livestock disease surveillance data obtained through veterinary auxiliaries from a primary animal health care delivery system in Central Somalia, the Nomadic Animal Health Auxiliary System, are demonstrated.

It has to be considered that the reports of disease treatments and patterns were provided orally by the local NAHAs and then transferred onto the data recording forms of the CRDP/GTZ Veterinary Component. Thus, figures generated should not be taken as absolute, but rather illustrating the magnitude of a condition. Figures are further confounded by the willingness for veterinary attention emerged from the decision of the livestock herder that treatment of a diseased animal in his/her flock is economically justified and, thus, unalterable. Therefore, the methodology applied served as a tool to primarily exhibit trends in disease patterns and to provide additional data on yet not well defined disease complexes such as Qanje in small ruminants.

Disease Surveillance and Community-based Animal Health: Experience of the Operation Lifeline Sudan Southern Sector Livestock Programme

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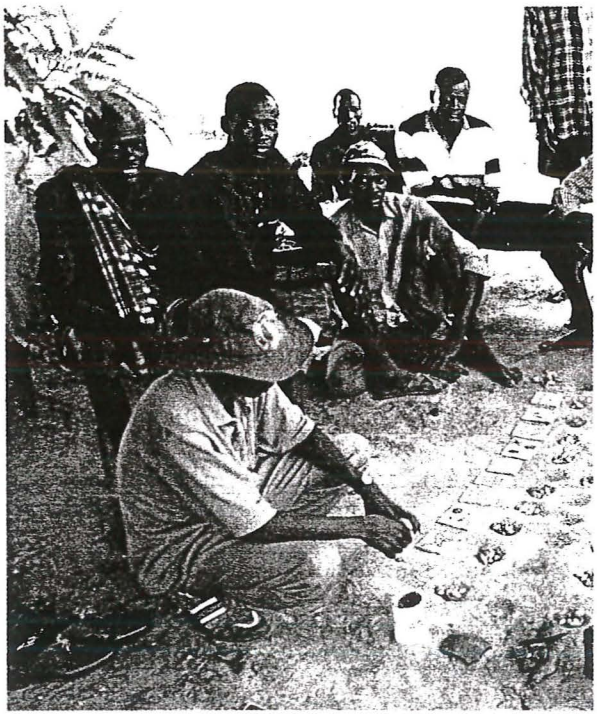

The OLS Southern Sector Livestock Programme has approximately 1000 CAHWs who have received two weeks basic training in disease diagnosis, treatment and vaccination. In addition there are approximately 150 supervisors who have been trained for 4-9 months in animal health, and approximately 35 field veterinarians employed by NGOs/FAO.

Routine information on cases treated is recorded by CAHWs on a pictorial monitoring form. Approximately once a month, each CAHW reports to his/her supervisor to report on medicine usage, collection of revenue and treatments carried out. The information in the pictorial form is summarized onto a summary form. This is submitted to the field veterinarian. The NGO extracts any data they require from the form and then all forms are submitted to FAO for entry into a centralised database.

Vaccination is usually carried out as teams of CAHWs. Vaccinations carried out are recorded by a literate member of the team on a daily vaccination form. These are submitted to the supervisor who passes them to the NGO for submission to the FAO database.

In addition, CAHWs report any outbreaks that have been reported to them by livestock keepers, or any outbreaks observed during their routine work. The CAHWs give an oral report to the supervisor of history and clinical observations. The supervisor will then follow up by visiting the outbreak and carrying out a basic investigation; history, clinical examination, post mortem examination (if possible) and collect samples (some but not all supervisors have sampling kits and are able to collect and submit samples). The supervisor then fills in an outbreak report form. This is sent to an FAO vet in Lokichokio who is the focal point for outbreak information. The supervisor also reports to the field veterinarian and if he/she is in the area, they will also follow up and verify the findings for the supervisor and collect samples if not already done. If the outbreak is urgent or severe, then outbreak information is sent by radio message. FAO will then follow up the report, either by asking for further information, providing appropriate medicines or vaccines, or by visiting to carry out further investigations.

Treatment, vaccination and outbreak information is collated into a summary report that is reported back to NGOs and field supervisors either quarterly or during livestock co-ordination meetings. Data is used by NGOs and FAO in compiling reports to donors.

Future plans in the context of the final stages of rinderpest eradication:

- outbreak reporting - to continue with the existing system but to provide training and field support to improve the quality of investigations, reports and follow up,
- active surveillance - CAHWs to be looking for rinderpest-like disease and talking with cattle owners about possible rinderpest, supervisors to be carrying out clinical surveillance and interviewing livestock keepers during routine cattle camp visits, and in markets, supervisors also to be involved in sero-surveillance collecting an agreed number of samples in their area for an agreed payment,
- RP Project field staff to carry out participatory disease searching in areas of possible RP endemicity, or as part of outbreak rumour investigation.

Participatory Disease Searching

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Introduction

Participatory Disease Searching (PDS) as part of participatory epidemiology is enabling veterinarians to collect information on specific disease situations. This paper describes PDS as related to rinderpest.

The specific methods and processes that are most useful for PDS are:

- Open-ended questions
- Probing
- Time-lines
- Triangulation (cross-checking of reports and data from different sources)
- Use of key informants
- Mapping
- Clinical observation and transects

What is the problem?

We have to define the problem as precisely as possible. For example, in the case of rinderpest control PDS can be conducted to:

- Ascertain rinderpest status
- Establish the last date of a rinderpest outbreak
- Reveal recent stomatitis-enteritis (S-E) outbreaks for investigation purposes
- Collect baseline data for sero-surveillance

Preparations for PDS

- Rinderpest is a disease that depends on the mixing of livestock for survival.
- There are no known carrier states or examples of chronic infection.
- The virus survives through the continuous occurrence of new acute cases in susceptible animals.
- Thus, the virus must continuously find new susceptible animals for survival.
- A safe, effective and inexpensive vaccine exists that has been successfully applied in most areas where veterinary service delivery is reliable.

These factors suggest, and indeed experience has shown, that remote, marginalized pastoral communities, where livestock contact rates are high and vaccination is sporadic, are often the reservoir for the endemic persistence of rinderpest (Mariner, 1996).

As a first step, an inventory of remote cultures and communities should be made and secondary sources of information should be obtained and researched.

In PRA, one often looks at 'proxy indicators' in regard to sensitive subjects for which it may be difficult to obtain unbiased direct information. Remoteness, insecurity, and lack of services can serve as proxy indicators for the likely presence of infectious disease when prioritising search areas at the national level.

It is especially important to avoid 'tarmac' or access bias in regard to rinderpest searching. As with any disease investigations, the appraisal team should carry all necessary sampling materials in case a SE outbreak is encountered.

PRA checklist for a Participatory Rinderpest Disease Search

1. Introduce the appraisal team as an animal health appraisal.
2. Identify the respondents and establish if they cattle owners.
3. Establish their main herding locations (mapping).
   Items 1 to 3 introduce the subject and establish the identity of the participants
   Items 4 to 6 are an expanding enquiry into animal health problems.
4. What are the current cattle disease problems in their herd? If tearing or diarrhoea is mentioned, explore these syndromes in detail. This item investigates what animal health problems the respondents are personally and presently facing.
5. What are the current cattle disease problems in the area? This item inquires into what animal health problems the immediate community is presently facing.
6. Historically, what are the most important disease problems of cattle? This item inquires into the most significant animal health problems the community has faced regardless of time.
   Invariably rinderpest is mentioned in the response to this question if the cattle owners have experienced outbreaks in the last two decades. Frequently it will be the first disease mentioned.
7. Have they personally seen rinderpest in their lifetimes? What does it look like?
8. When was the last time their cattle where affected by rinderpest? Where did it occur? Where did it come from?

As warranted, further probing questions can be added to cross-check reports made in other interviews, further define cattle movements which may affect the epidemiology of the disease, or to contrast current outbreaks with previous outbreaks in regard to the severity of disease.

Interviewing as a tool for PDS

One of the objectives of PDS is usually to gather complete information about all disease situations in the village livestock. Ideally, all owners of the relevant livestock species in the village should attend the interview. The best people to have at the interview are those that know the animals best. As with other types of disease searches:

The interviewer should be careful not to communicate their specific interest in rinderpest to the respondents. If possible avoid travel in vehicles used in rinderpest control activities or with individuals locally known to be specialized in rinderpest control. The interview should be introduced as a general study of animal health issues in cattle or a similarly broad theme.

Disease names

The choice of words is particularly important when discussing particular disease. The appraisal team will often think about diseases as particular entities, each with a particular separate cause. On the other hand, think more in terms of disease syndromes. When an animal behaves in a particular way, and shows particular signs, then it is thought of as a particular disease. This disease syndrome may have a unique local name, or the technical name of a particular disease may be used. The tendency of livestock owners to talk about disease syndromes based on patterns of clinical signs, rather than specific diseases should be kept in mind during the interview. Mistakes can be avoided by paying attention to a few points.

Don't use the technical name for a disease when asking about that disease. If you know the local name, and understand what disease or diseases it truly represents, then use that name. In some situations, the clinical signs and behavior of the disease in the population are distinctive enough to be sure that the name given by owners does refer to a single disease. In others, it is not so simple.
The eliciting process of all known cattle disease names should be in the language of the community. This works particularly well with a small group as the stories and ideas of one important often spark the mind of another. However, there are several biases that should be avoided.

Seasonality: livestock owners are most likely to mention diseases of the current season. After those are elicited, ask specifically for diseases most prevalent in other seasons and /or year round.

Severity of disease: livestock owners are most likely to give the names of the most serious (i.e. fatal) diseases so make sure that chronic diseases and those which are not fatal, but may lead to production losses, are also recorded.

Incidence of disease: it is useful to ask the group whether there are diseases that appear only periodically otherwise one might miss major epidemics that sweep through an area, or conditions that appear only in unusual climatic circumstances.

Persistent questioning

One rule of collecting information through interviews is that you should never be satisfied with the first answer. When a question is asked, there is the danger that the answer could be wrong, either for the reasons listed previously, or else because the experience of the person answering doesn't represent the experience of the whole village.

It is a good idea, therefore to check and recheck every answer that is received. Asking the same question in several different ways, to several different people, does this. Each time, the question focuses on some different aspects of the problem, and each answer is compared. If there is some inconsistency, then discussions started to try to resolve it and come up with a consensus.

Topics for probing

Probing on specific subjects can provide very useful insights into community knowledge on disease epidemiology, pathology and diagnostic processes. Often it is best to reserve these probing sessions for especially knowledgeable key informants. These are usually more senior members of the community respected and consulted by the community for their livestock knowledge.

Diarrhoeal disease:
In a subset of interviews, the community should be probed about the different terms used to describe diarrhoeal disease. Points to be investigated are:
What terms are used to signify diarrhoea in general?
Are different types of diarrhoea distinguished (i.e. bloody vs. non-bloody, acute vs. chronic, etc.)
What specific diseases do they associate with diarrhoea?
What indicators are used to differentiate between different diarrhoeal diseases?

Disease concepts and methods of rinderpest transmission:
It is useful to attempt to understand local concepts regarding the cause of disease and methods of transmission. In regard to rinderpest, pastoralists

can often accurately describe risk factors and types of contact that lead to transmission. Knowledge in these areas varies significantly between communities and it is important not to make assumptions.

Mapping

Rinderpest is a disease that depends on cattle contact and movement for its survival. Mapping of cattle movement and determination of inter-community contact is a very important activity in regard to understanding local rinderpest ecology.

In order to initiate a mapping exercise, respondents should be asked to specify their primary grazing sites by season. Depending on the complexity of the bio-climatic system, it may be worth constructing a seasonal calendar as a companion exercise. Often, pastoralists will specify location names that are not evident on modern maps. These initial questions often turn to a discussion of just exactly where these key resource sites are which naturally leads to the sketching of maps on the ground.

A broad area about an arm and a half reach should be cleared and smoothed. Usually, participants will naturally gather round and equip themselves with the necessary tools: normally sticks and other objections to assist in drawing and act as land marks. The participants should first be asked to indicate key landmarks such rivers, market towns, major wells or watering sites. Then the grazing sites can be indicated. In addition to normal grazing sites, emergency-grazing areas used in time of drought or insecurity should be indicated. For rinderpest epidemiology, the data on movement, mixing (contact) and trade will be the most significant. These will be key factors in subsequent risk analysis and in disease control strategy design. Movement and contact data relative to the presence of the virus will determine where and when vaccination or surveillance is appropriate.

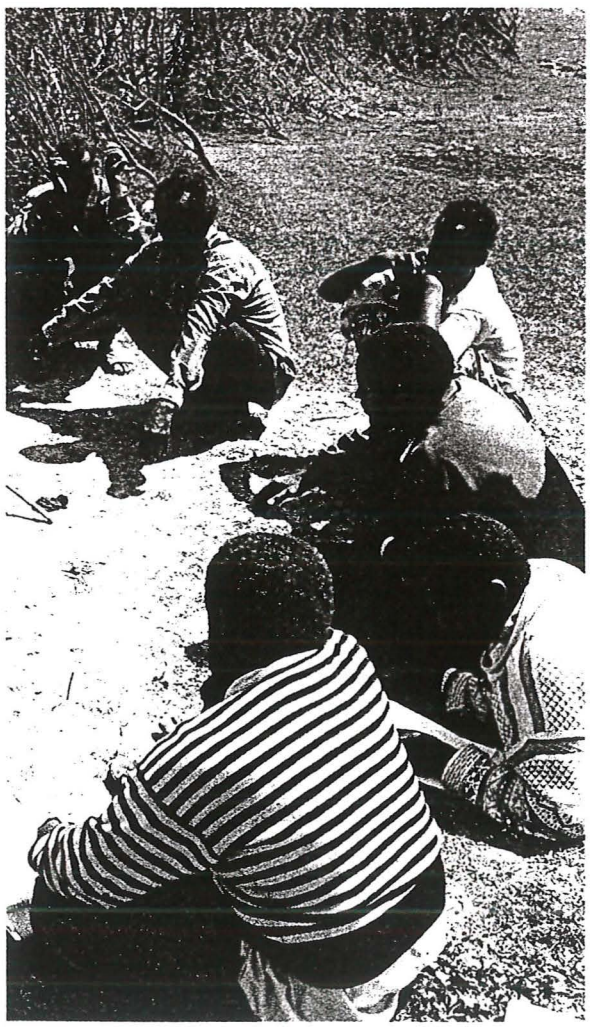
Clinical observation, sample collection and transects

Before or after an interview, it is always useful to walk the camp, herd and adjacent environment. In rinderpest disease searching, tearing is a sign that can be detected at a distance. If you are walking the herd prior to the interview and note tearing, it is best not to call attention to the sign. Proper clinical exams should be carried out after the interview. The only exception is when the livestock are on the move and you run the risk of losing the opportunity.

Analysis of results

Participatory disease searching is somewhat different from other types of PRA. Most PRA interviews start at a general level and work towards specifics. The interview technique used in PDS casts an ever-broadening net until the respondents volunteer rinderpest as a problem. At this point the interview begins to focus down on EVK regarding rinderpest. This could happen at any of three levels: current personal experience, current personal observation or in the past. Part of the process of judging the quality and significance of reports relates to when the respondent introduces the subject of rinderpest.

As described previously, reports of rinderpest or other SE events should be categorized, tabulated and examined for trends or unifying factors. The existence of the stomatitis-enteritis outbreak definition and guidelines for comprehensive rinderpest surveillance assists in the analysis of rinderpest PDS results.



Participatory epidemiology in veterinary research and education

This session involved a discussion group of representatives from veterinary schools in the Horn of Africa and east Africa region to discuss:

- Research needs in participatory epidemiology
- Training needs in participatory epidemiology in veterinary schools

Research needs

Discussion began on conventional versus participatory research approaches, because ideally, participatory epidemiology should be used within a participatory research context. Conventional and participatory research was summarized in the table below.

The point was also made that participatory research should be action-orientated and result in products that livestock keepers can use or benefit from.

The second part of the discussion focused on specific areas of research to further refine PE methods, apply existing PE methods or further examine CAHW programmes. The main research topics were:

- The use of PE in disease investigation and surveillance;
- The use of CAHWs as disease reporters, with emphasis on sustainability issues and incentives for reporting in a privatized system;
- Economic assessment of CAHWs;
- Characteristics of CAHW systems such as effective selection of CAHWs, gender issues and the pros and cons of illiterate versus literate CAHWs;
- Impact assessment of CAHWs

Training opportunities in veterinary schools

The group confirmed that very little, if any, training in PE was currently taking place in veterinary schools in the region. Short seminars and introductory training in PE for small numbers of faculty staff had been conducted at the Faculty of Veterinary Medicine, Sokoine University of Agriculture (Tanzania) and the University of Nairobi (Kenya), with support from the CAPE Unit of OAU/IBAR.

It was generally agreed by representatives from Uganda, Ethiopia and Tanzania that more training and experience in PE was required in veterinary schools. Various ideas were proposed concerning whether PE should feature in undergraduate or postgraduate courses. Some participants felt that the undergraduate course in their schools was already too full to allow space for PE, while others felt that PE was of sufficient importance to introduce at the undergraduate level. Finally, some people suggested that PE was still new and that postgraduate courses were the most appropriate place to teach people about PE.

This general interest in greater learning about PE indicated that the CAPE Unit should further develop support to veterinary schools in the region.

	Conventional research	Participatory research
Who identifies the research topic?	Researcher(s)	Users
Who plans the research?	Researcher(s)	Researcher and users
Which methods are used?	Formal	Formal and participatory
Who owns the results?	Researcher	The group had mixed opinions: 'Should rest with users' 'The researcher(s)' 'Joint, but depends on funding'
What is the final research product?	A scientific paper	A technology or adoption of technology
Who provides resources?	Mainly the researcher, via an external funding source	Joint provision of resources
Who evaluates the research?	The researcher's manager, peers or examiners	The users

Session 4

National PACE Programme Working Groups

Tasks for Working Groups

During this session, participants were divided into working groups representing National PACE Programmes from Ethiopia, Kenya, Somalia, Sudan, Tanzania and Uganda. Each working group was requested to complete the tasks described below.

1. As a working group, what are the main "lessons learned" from the presentations and discussion groups during the workshop. List these lessons and rank them in order of importance.

2. By reference to the objectives of:
   - National PACE Programmes
   - CAPE Unit
   - Veterinary schools and research centres,

   identify specific ways to use participatory epidemiology to add value to PACE.

   Ideas arising from discussion so far include,
   - Use of participatory epidemiology to improve understanding of epizootic diseases in pastoral areas
   - Testing of community-based surveillance systems
   - Participatory impact assessment of CAHW services
   - Further development and testing of PE methods and approaches

   The working group may identify other needs in addition to this list.

   Please be specific. Try to make specific proposals based on your knowledge of existing disease control priorities and presence of CAHW or other services on the ground. Which diseases should we look at in which areas? Who are the key players who should be involved? What are the deadlines for completing the work?

3. Identify training/educational needs for the various players involved in testing and applying PE in pastoral areas.

   Outline a training plan which specifies who should be trained (which people in which institutions?) and when (what are the deadlines by which training should have taken place?).

Presentations by Working Groups

1. Lessons learned during the workshop

PACE Ethiopia
- Created more awareness on PE
- Methods used and constraints in PE
- Involving local communities in information gathering way of using indigenous knowledge
- CAHWs as collectors of data to be integrated into national animal health information systems.
- Ways to integrate PE results in conventional research, i.e.
  - Training needs in PE
  - Incorporation of PE in research and learning institutes

PACE Tanzania
- Scope and potential application of PE in disease surveillance
- Participatory tools can be used to suit particular situations (flexible and adjustable)
- Better results/findings can be obtained by the use of both quantitative and qualitative methods of investigation
- Results from PE can be used in contemporary epidemiological techniques, modelling and risk assessment
- Indigenous knowledge can be captured, appreciated and used effectively; cultural and nomenclature differences need to take on board
- Appreciation of the involvement and ownership by stakeholders and target groups
- Often a lack of common understanding about what PE is, what it can do and best practice and application

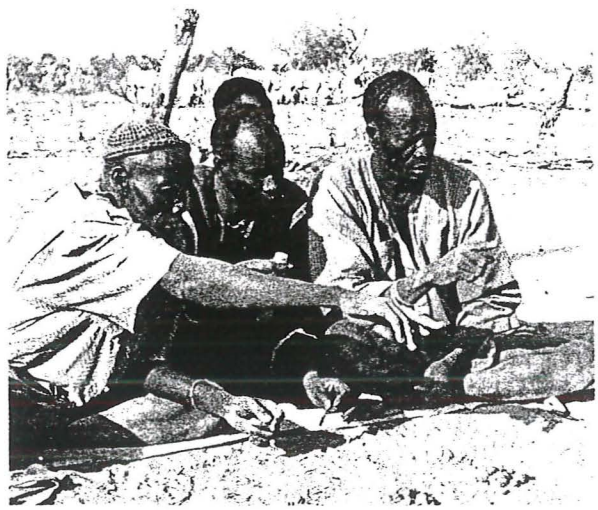
PACE Uganda
- PE can help tap the available local knowledge pastoral areas
- PE can complement the existing surveillance systems
- PE can generate baseline data that can help to target surveillance and research
- PE is associated with projects and NGOs - how sustainable are these?
- PE implies ownership, learning empowerment the local communities

- There is a need to integrate the PE into the National Surveillance Network
- Need to co-ordinate PE activities at district and national levels
- Need to train personnel in personnel at all levels in PE methods

PACE Sudan
- Potential for getting information from CAHW
- How valid - does it fit in the system
- Comparison between different methodologies PE
- Exchange of ideas and practices
- Respect, recognize and make use of indigenous knowledge to be incorporated into research activities

PACE Kenya
- Use of PE improves the understanding of epizootic diseases in pastoral areas.
- Empowers communities to identify and solve their own problems
- PE is not structured questionnaire
- Combined qualitative and quantitative is "best practice"
- Useful in testing community-based surveillance systems
- Participatory impact assessment of CAHW services
- Need for further development and testing of PE methods

PACE Somalia
- To combine PACE Methods with conventional epidemiology methods
- PE methods useful for validation of certain information, models, concepts
- PE methods useful for descriptive epidemiology (disease alert, pattern, livestock movement)
- Useful for first steps in an area to assess the health situation (if a disease problem exists better than disease is mild or endemic)



2. Ways to use participatory epidemiology in National PACE Programmes

The common themes in National PACE Programme objectives are:

1. Final eradication of rinderpest
2. Strengthening national epidemiology capacity
3. Control of major epizootics
4. Improved veterinary service delivery and privatization

PACE Ethiopia

Participatory epidemiology can assist the programme by:
- Providing information from remote areas
- Passive surveillance by making use of CAHWs through an established system
- Active surveillance using PE methods

This will lead to:
- Better understanding of disease
- Refining strategies
- Early warning and early reaction

Specific activities
- Inventory and assessment of CAHW programmes
- Establish linkages and improve information flow between CAHW/NGOs and government veterinary services
- Introduce PE into CAHW projects (widen scope to reporting)
- Standardisation of information
- Monitoring and evaluation
- Collect indigenous knowledge
- Incorporate into teaching and research

CAPE can act as an initiator and facilitator of these activities

PACE Tanzania

In PACE Tanzania, CAHWs are considered under the objective 'Improvement of the Delivery of Veterinary Services'. So far, PE as a tool was not been included in the implementation/activities in the PACE Tanzania Global Plan. However, PE can be used to add value to PACE. For example, PE has a role in:

1. Strengthening veterinary services - in disease surveillance and delivery of animal health services
2. Privatisation of veterinary service delivery by:
   - Establishment of links between private vets, other animal health service providers
   - Fostering the involvement of private vets in epidemio-surveillance
3. Rinderpest eradication - clinical surveillance

4. CBPP control and the control of other epizootics (FMD, ND, RVF, ASF). PE can assist:
   - Surveillance
   - Control of livestock movements and improved participation/response in vaccination campaigns
   - Fostering and sensitisation

Overall, PE can enhance livestock owners' participation and ownership of disease control programmes

CAPE can provide technical and logistical support in areas involving PE. The Animal Health Services-Coordination Programme is responsible for improved delivery of animal health services. This includes expansion and proper use of CAHWs under the supervision of vets in pastoral areas.

Specific proposals for immediate application of PE
1. Rinderpest surveillance - support to clinical surveillance (Dec. 2001- July 2002)
2. African swine fever - involving livestock keepers, raising awareness and improving surveillance and control
3. CBPP - surveillance; impact assessment of CBPP (vaccination versus control)
4. Newcastle disease - socio-economic studies

Various activities include research centres such as the Animal Diseases Research Institute (ADRI) and veterinary investigations centers.

Also need to consider veterinary training institutes - CAPE to support curriculum development to include PE in undergraduate and postgraduate training:
- Short course - for epidemiologist/field officers (by December 2002)
- Training of trainers (by April 2002)

Key Players:
- Livestock keepers - associations, groups
- Livestock field officers
- Livestock traders
- Private veterinarians
- DVDS
- VICs and ADRI
- DVS (Epidemiology Unit)
- University/SUA

PACE Uganda
1. Integrate and co-ordinate PE with other surveillance and other epidemiological tools for RDP, CBPP, CCPP, OOR, FMD, ASF, LSD, RVF, rabies and other diseases. Players include MAAIF, National Agricultural Research Organizations, Faculty of Veterinary Medicine and private veterinary practices; timeframe - 6 months.
2. Train 'trainers of trainers' in PE.
3. CAPE facilitates a PE investigation into "Mixed infection syndrome; March 2002.
4. DVOs and MAAIF conduct continuous monitoring and evaluation of community-based surveillance system in Karamoja region.
5. Further development of PE methods in the PACE districts.
6. PE methods will shed light on endemic diseases and syndromes.

PACE Sudan
General roles for PE include:
1. Disease surveillance
2. Disease control
3. Strengthening veterinary services
4. Disease diagnosis
5. Research - centers include:
   - 11 regional vet labs in the regions
   - 3 vet schools
   - veterinary training center (KRT).

Use of PE through CAHWs, local leaders and livestock owners. Activity already practiced in N. Kordofan and Darfur on-going. In the southern sector through FAO, PE is used in the South to find RP outbreaks in infected zones to complement PACE programmes. PE also used during vaccination teams.

PACE Kenya
Roles for PE can be categorized according to three main programmes or players:

A. In the PACE Kenya Programme
1. Envisage PE to improve epidemio-surveillance network through disease surveillance and reporting. Specfically,
   - Rinderpest eradication process
   - Improve the control of other epizootics: CBPP, FMD, RVF, LSD
   - Strengthen private - public sector linkages in delivery of animal health services
2. Will help in the understanding the socio-economics of major epizootics and therefore shape/refine their control strategies
   Our priority areas are the pastoral areas (Zone II & III) and the key players are public vets, NGOs and CAHWs, and private vets. Timeframe - duration of PACE and beyond.

B. In the CAPE Unit
1. Streamlining the delivery of vet services in pastoral areas
2. Streamlining data collection in pastoral areas
3. Linkages within the region

C. Veterinary Schools and Research Institutes
1. Introduce PE in training curriculum

2. Utilize PE in research on animal diseases and program evaluation. Already underway are the following research projects involving PE:
   - Trypanosomiasis in camels
   - CBPP
   - Business planning in Animal Health Services Delivery in pastoral areas

3. Training needs

PACE Ethiopia training needs
Trainees for PE training should be selected from:
- PACE
- Veterinary field services
- Research Institutes
- Teaching Institutes
- NGOs involved in CAHW programmes

Who to train?

Veterinarians, CAHWs and policy makers should all receive training. CAPE should provide training materials and Training of trainers courses.

PACE Sudan training needs

PACE Sudan suggested that initially, a general awareness-raising workshop was required for supervisors and policy makers. Specific PE training events could then follow, particularly to train veterinarians in PE ad apply it in communication, monitoring and evaluation, and data collection and analysis.

CAPE should provide support in the form of training trainers, and resources to assist further training courses in Sudan.

PACE Uganda training needs

Players	Training Needs	Time Scale	CAPE support
MAAIF, Policymakers, PACE staff, Epidemology staff	Awareness in PE TOTs/ advanced	June 2002 March 2002	Logistics Trainers
LG, District staff, Extension workers	Basic PE	Continuous	
Researchers	TOT/Advanced PE	March 2002	"
Private sector, PVPs, NGOs	Basic TOT	Continuous	"
CAHWs	Basic	Continuous	"
Pastoralists	Awareness	Continuous	"

PACE Kenya training needs

Players	Type of training	When?
University lecturers	TOT - PE	In place
University students (undergraduates)	PE	?
Vets in pastoral areas Epidemiologists Key NGO staff	TOT - PE	2002
Other public, NGO, Private, CAHWs extension personnel + VIL teams	PE	2002 and beyond

PACE Tanzania training needs

Players	Training Needs	Time Scale	CAPE support
Training institutes/ veterinary schools	Training of trainers - in new developments of PE; in-depth Curriculum development	April 2002	Financial resources for establishment of short course programme
Research institutes/ Zonal- disease investigation centers	Basic training in PE (short course) Advanced training in PE Research methodologies	April 2002	Financial other resources e.g. Trainers
National Epidemiology Unit/Epidemiologists	Basic and advanced training in PE	April 2002	Financial other resources e.g. Trainers
VICs - zonal vet. Research officers	Basic training in PE	Dec. 2002	Financial Training material
DVOs	Basic training in PE	April 2003	"
Private vets and Livestock Field Officers (LFOs) in the field	Basic training and practice of PE	July 2003	"
CAHWs	On-the- job training	Continuous	"
Livestock farmers	Awareness raising on-farm	Continuous	"
Policy makers	Awareness raising	July 2002	"

It was suggested that general awareness training was also required to familiarise policy makers and farmers.

The role of the CAPE Unit in training was provision of expertise, technical back-stopping and funding.

PACE Somalia training needs

In PACE Somalia, PE training needs included staff in the Somalia Livestock Professional Forum (SLPF), National Coordination Unit, Zonal Coordination Units (4) and Zonal Professional Associations. Private veterinarians under contract to PACE Somalia should also be trained.

Annex 1
Workshop timetable

Day 1
Thursday 15th November

8.30 - 9.00am	Registration of participants
9.00 - 9.30am	Welcome Background and objectives of the workshop
9.30 - 10.00am	Opening speech by Ato Belay Ejigu Vice Minister, Ministry of Agriculture
10.00 - 10.30am	Coffee break
10.30 - 11.30am	Presentation "Participatory Epidemiology: Setting the Scene"
11.30 - 12.30am	Presentation "Livestock keeping and indigenous knowledge in the Horn of Africa: Personal reflections on 25 years experience"
12.30 - 2.00pm	Lunch
2.00 - 3.00pm	Issues affecting the wider use of participatory epidemiology Issue 1. Qualitative verses quantitative methods
3.00 - 3.30pm	Tea break
3.30 - 4.30pm	Issues affecting the wider use of participatory epidemiology Issue 2. Methodological issues
4.30 - 4.45pm	Summary of Day 1

Day 2
Friday 16th November

9.00 - 11.00am	Working Groups by country		
9.00 - 10.00am	Issues affecting the wider use of participatory epidemiology Issue 3. Training and practice Session "The Ideal Qualities of a Participatory Epidemiologist"		
10.00 - 10.30am	Coffee break		
10.30 - 11.00am	Where can Participatory Epidemiology fit into PACE? - Introduction		
11.00 - 12.30am	Improving epizootic disease control using combined participatory and modelling approaches		
12.30 - 2.00pm	Lunch		
		Group 1 *Mainly of interest to PACE epidemiologists involved in epizootic disease control*	Group 2 *Mainly of interest to researchers and academics*
2.00 - 3.00pm		Participatory epidemiology and disease surveillance animal health services	Use of participatory approaches and methods in community-based
3.00 - 3.15pm		Tea break	Tea break
3.15 - 3.45pm		Participatory epidemiology and disease surveillance (continued) opportunities	Participatory epidemiology and research: Experiences and
3.45 - 4.45pm		Participatory Disease Searching veterinary education	Participatory epidemiology and
4.45 - 5.00pm		Summary of Day 2	

Day 3
Saturday 17th November

9.00 - 11.00am	Working Groups by country - Identify opportunities for using PE to complement national PACE Programmes - Describe specific activities in terms of disease problems to be addressed, priority geographical areas and key players to be involved in each activity - Identify training needs related to the above. Who should be trained, how should they be trained? - Outline a work plan for incorporating PE-related activities into each national PACE programme.
11.00 - 11.30am	Coffee break
11.30 - 12.00am	Group presentations - PACE Ethiopia
12.00 - 12.30am	Group presentations - PACE Somalia
12.30 - 2.00pm	Lunch
2.00 - 2.30pm	Group presentations - PACE Tanzania
2.30 - 3.00pm	Group presentations - PACE Kenya
3.00 - 3.15pm	Tea break
3.15 - 3.45pm	Group presentations - PACE Uganda
3.45 - 4.15pm	Group presentations - Sudan
4.15 - 5.00pm	Outstanding issues, Workshop evaluation and close

Annex 2
List of participants

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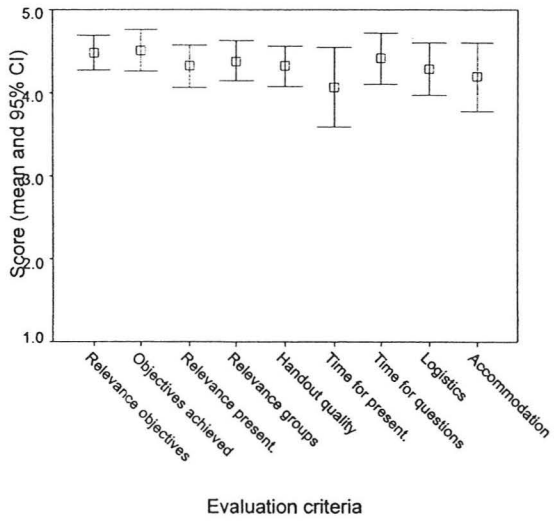
Annex 3
Participants' evaluation of the workshop

Participants were asked to score from 1 (very poor) to 5 (excellent) the following criteria for evaluating the workshop:

- relevance of objectives
- achievement of objectives
- relevance and value of presentations
- relevance and value of group discussions and presentations
- quality and relevance of handouts
- time allocated to presentations
- time allocated for questions and discussion
- general organisation and logistics and for the workshop
- accommodation

Results from 52 respondents are summarized below.



COMMUNITY-BASED ANIMAL HEALTH &
PARTICIPATORY EPIDEMIOLOGY UNIT (CAPE)
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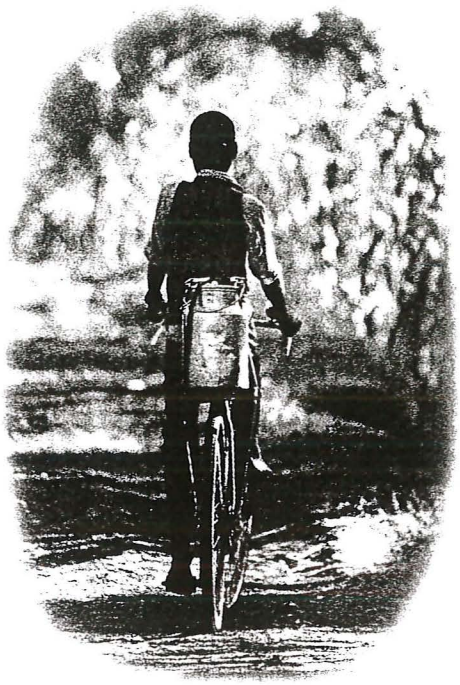
PAN AFRICAN PROGRAMME FOR
THE CONTROL OF EPIZOOTICS
ORGANIZATION OF AFRICAN UNITY (OAU) INTER-
AFRICAN BUREAU FOR ANIMAL RESOURCES (IBAR)



Livestock
a pathway out of poverty

ILRI's strategy to 2010

International Livestock Research Institute

Livestock—a pathway out of poverty

ILRI's research strategy to 2010

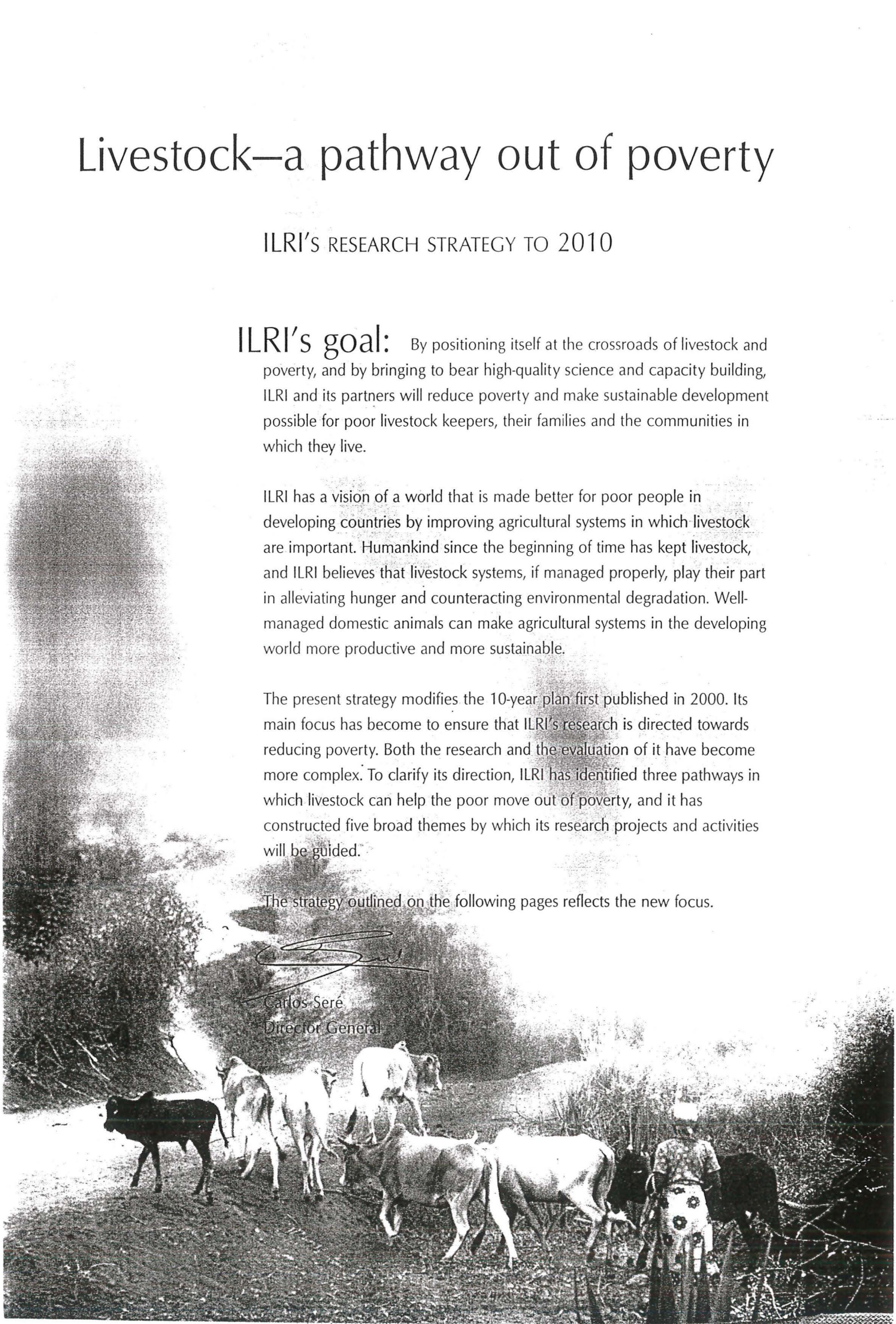
ILRI's goal: By positioning itself at the crossroads of livestock and poverty, and by bringing to bear high-quality science and capacity building, ILRI and its partners will reduce poverty and make sustainable development possible for poor livestock keepers, their families and the communities in which they live.

ILRI has a vision of a world that is made better for poor people in developing countries by improving agricultural systems in which livestock are important. Humankind since the beginning of time has kept livestock, and ILRI believes that livestock systems, if managed properly, play their part in alleviating hunger and counteracting environmental degradation. Well-managed domestic animals can make agricultural systems in the developing world more productive and more sustainable.

The present strategy modifies the 10-year plan first published in 2000. Its main focus has become to ensure that ILRI's research is directed towards reducing poverty. Both the research and the evaluation of it have become more complex. To clarify its direction, ILRI has identified three pathways in which livestock can help the poor move out of poverty, and it has constructed five broad themes by which its research projects and activities will be guided.

The strategy outlined on the following pages reflects the new focus.

Carlos Seré
Director General



Understanding poverty and the role of livestock in reducing poverty

If poverty is to be reduced in a sustainable way, first we must understand what poverty is.

Poverty not only covers deprivations in income and consumption but also disadvantages encompassing a wide array of human development and well-being. It affects education, health and nutrition; it results in lack of empowerment; it increases vulnerability to shocks.

Emphasising poverty's multidimensional nature, ILRI uses the following definition:

> Poverty is pronounced deprivation in human well-being encompassing not only material deprivation but also poor health, literacy and nutrition, vulnerability to shocks and changes, and having little or no control over key decisions.

A simple and widely used gauge of poverty is having to live on an income of less than the equivalent of US$1 per day, a situation endured by an estimated 1.3 billion people or one-fifth of the world's population. A disproportionately large number of the poor are women, and it is therefore important that poor women receive a major share of ILRI's attention.

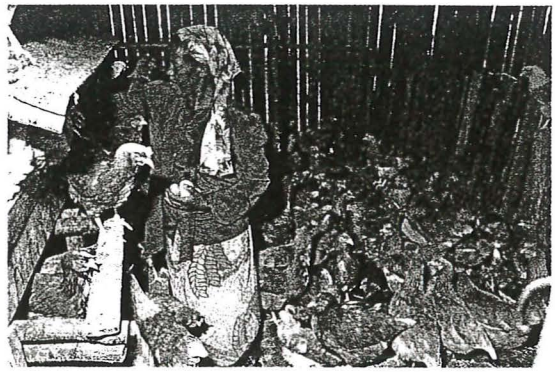
For research on poverty reduction to be successful, it must include gender analysis to determine how best to improve conditions for rural women. And poor women, who are primary clients of ILRI, need to be involved as genuine participants in research affecting them.

Women constitute 60% of the world's poor, and 70% of the poorest of the poor. Women provide more than half the labour force required to produce food in the developing world. In Africa, close to 70% of the staple foods are produced by women farmers. But for a number of reasons yields on crops that women cultivate are generally low.

Men usually control the major earnings from the farm, women the lesser earnings. Men use a higher proportion of their income for large household expenditures and for personal expenditure; women typically spend a higher proportion of their income on food and health care for children.

Information drawn on Jacqueline A. Ashby, Poverty and gender: a proposal for action research, a paper prepared for the CGIAR Conference on Poverty, Costa Rica, September 1999

We are focusing primarily on the poor rural livestock keepers of sub-Saharan Africa and South Asia. The rural poor are particularly vulnerable to environmental degradation, and livestock can affect the natural resource base on which their livelihoods depend both positively and negatively. Many peri-urban poor in these regions also rely on livestock for their livelihoods.



All consumers, and particularly the rural and urban poor, can be at risk from food-borne diseases and zoonoses (diseases that can be transmitted from animals to people), even if they do not themselves keep livestock.

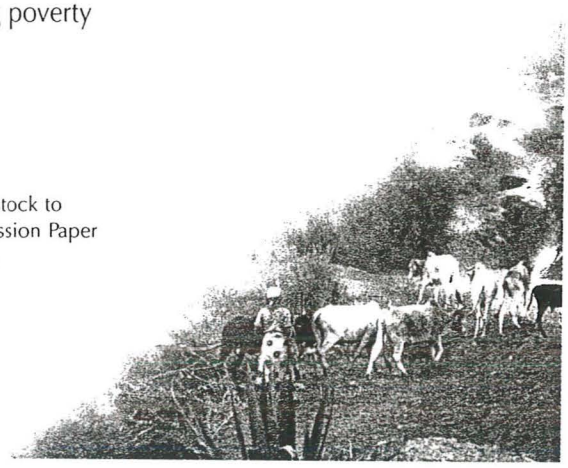
The potential of livestock to reduce poverty is enormous. Livestock contribute to the livelihoods of more than two-thirds of the world's rural poor and to a significant minority of the peri-urban poor. The poorest of the poor often do not have livestock, but if they can acquire animals, their livestock can help start them along a pathway out of poverty. Livestock also play many other important roles in people's lives. They contribute to food and nutritional security; they generate income and are an important, mobile means of storing wealth; they provide transport and on-farm power; their manure helps maintain soil fertility; and they fulfil a wide range of socio-cultural roles. A predicted increase in demand for animal food products in developing countries–called the Livestock Revolution[1]–offers the poor, including the landless, a rare opportunity to benefit from a rapidly growing market.

Animal food products such as meat and milk are concentrated sources of high-quality protein and certain vitamins and minerals. When children consume even modest amounts, these products help alleviate poor growth, poor mental development and general ill health.

Livestock have a positive effect on diets, health, incomes, financial security, sustainable crops yields, employment prospects and social status. Livestock can, however, impoverish people, for instance by degrading land and water resources.

Although livestock keeping is not a universal panacea, if animals are managed properly, they can be an important lever for reducing poverty and boosting the economy in developing countries.

[1] Delgado C., Rosegrant M., Steinfeld H., Ehui S. and Courbois C. 1999. Livestock to 2050: the next food revolution. Food, Agriculture and the Environment Discussion Paper 228. IFPRI (International Food Policy Research Institute), FAO and ILRI. IFPRI, Washington, DC.



Pathways out of poverty

Before determining possible pathways out of poverty in which livestock can play an important role, ILRI examined the innovation process, which it divided into three interrelated components that are dynamic and overlap. These components never develop in a linear fashion but are characterised by dialogue and interaction among all those involved:

- adoption of research products, including new and existing knowledge, technologies and policies
- improvement or adaptation of existing tools, methods and approaches to make them better or more applicable to particular situations
- Strategic research, involving the development of new tools and new approaches

These components interplay with what ILRI has identified as three pathways out of poverty that it can act upon:

1) securing the current and future assets of the poor
2) sustainably improving the productivity of agricultural systems of the poor
3) encouraging participation of the poor in livestock-related markets

Pathway 1—Securing the current and future assets of the poor

Livestock are important material and social resources for many of the rural poor and some of the peri-urban poor in the developing world and play integral roles in their lives. They are especially important assets for pastoralist people and make a greater contribution to their household economies and food security than in any other production system.

In some cases livestock are the only material asset that the poor can accumulate, and even the landless can do so by using communal feed resources, waste products and purchased feeds. For the poorest of the poor, livestock can, in some situations, be the first step along the pathway out of poverty.

Roles of livestock keeping revolve around storing wealth, contributing to food and nutritional security, providing draught power, transport and manure, and serving traditional social functions. But the productivity of the animals of the very poor is often low in yield of marketable outputs. However, although their productivity may be limited, these animals may possess other valuable traits such as disease resistance. Threats to the security of these vital assets include disease, theft and predation, drought, floods, earthquakes, seasonal feed deficits and site-specific nutritional deficiencies. Poor livestock keepers often reduce risk by keeping more than one species of animal. For example, pastoralists might keep cattle, or camels in arid regions, together with sheep and goats while mixed crop–livestock farmers might keep buffaloes, pigs and poultry.

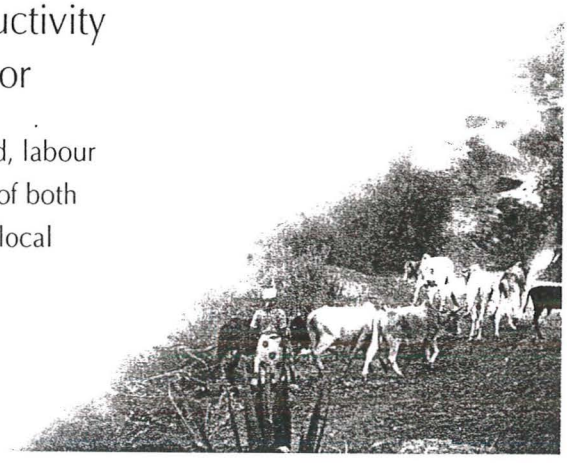
In some situations, the 'livestock ladder' may allow the poor to progress from modest livestock holdings, such as a few poultry, to acquiring sheep and goats or pigs, or even cattle or buffaloes. The livestock holdings of the poor are dynamic, with the number and mix of livestock increasing during times of surplus and decreasing when shocks such as drought, war or outbreaks of epidemic disease occur.

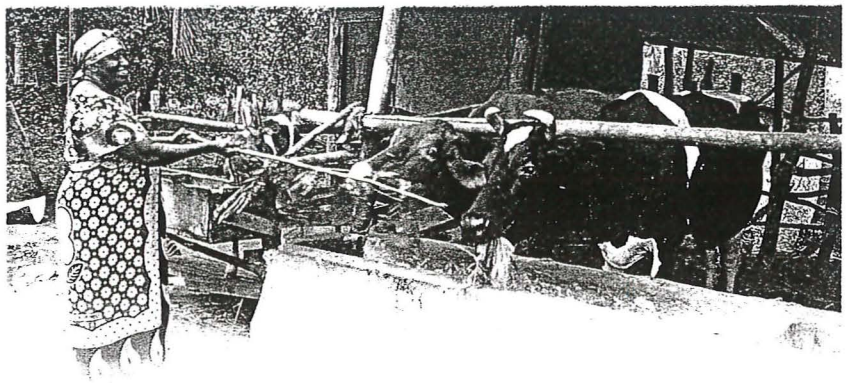
Security of future assets of poor livestock keepers is equally important. It requires access to land and to natural resources and sustainable management of them. Factors such as HIV/AIDS and urban drift reduce the availability of family labour, which threatens current, labour-intensive, farming practices.

The combination of the factors that limit sustainable farming systems and the risk of devastating shocks reduce the capacity of the poor to either maintain or accumulate assets, thus limiting their ability to move out of poverty.

Pathway 2— Sustainably improving the productivity of agricultural systems of the poor

Better livestock production efficiency (such as better use of land, labour and water) and greater use of inputs can improve productivity–of both indigenous and improved breeds. For example, productivity of local





poultry breeds can be improved by vaccinating against Newcastle disease, protecting chicks from predators, and perhaps adding dietary supplements. Introducing improved breeds can increase productivity significantly, such as by replacing low-yielding zebu cattle with much higher-yielding crossbred or purebred dairy cattle in suitable smallholder dairy systems.

Improved breeds, however, are likely to be less disease resistant and require more inputs in feeds and in preventive treatments than indigenous breeds. Without them, the level of risk can increase significantly. Livestock keepers also need to practise a higher level of management, like stall-feeding units for cattle and balanced feeds for

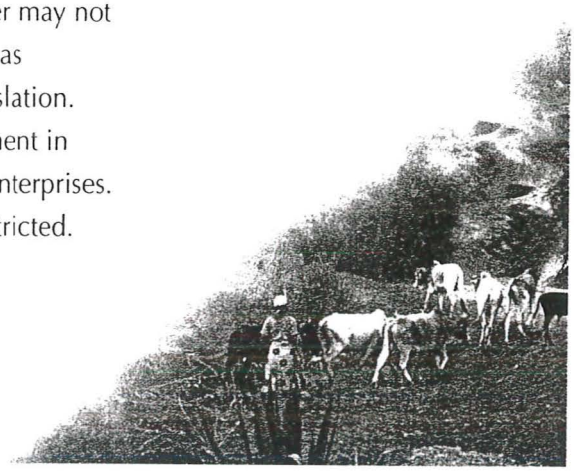
poultry. They also need reliable access to feeds and to animal health and breeding services. They must be able to handle seasonal feed shortages and any nutritional deficiencies. To do this means additional labour and capital, and lack of access to capital or credit is a critical constraint to this pathway out of poverty.

Pathway 3—Encouraging participation of the poor in livestock-related markets

Participating in livestock-related markets offers the poor, and especially women, a possible route to better livelihoods. This presents them with an opportunity to benefit from the increase in demand for meat and other livestock products predicted as part of the Livestock Revolution. Better market access can secure better income and welfare for smallholder livestock producers. By creating demand, markets promote economic growth. Markets also help accumulate material assets. They provide a means towards improved nutrition and balanced diets–and thus help reduce poverty. It is also important to keep in mind the wide range of other roles that livestock play in many societies. The challenge is to strike a balance between market opportunities and the non-financial roles that livestock play in the lives of the poor.

A wide range of livestock-related goods and services can be marketed: traditional products–live animals, milk, meat, offal, hides and skins, wool, eggs, feathers, bone, horn, manure–and services such as transportation and tillage. Value can be added for some of these products, for instance, by transporting animals or produce to distant markets where prices are higher; by processing milk to make products such as yoghurt; and by turning raw materials such as horn, bone and hides into craft items. Markets for non-traditional products and services are also emerging, such as payment for stewardship of biodiversity, eco-tourism, and perhaps in the future, carbon credits.

The ability of the poor to exploit these diverse marketing opportunities will in many cases be limited. They will not have the know-how, business contacts, capital or credit facilities. Roads to markets will be poor and communication systems lacking. Competition from large-scale producers may be overwhelming. And the small-scale producer may not be able to comply with animal disease control measures such as movement controls and quarantines or with public health legislation. Such barriers to market access limit opportunities for employment in livestock-based enterprises for the poor or for them to create enterprises. In many societies women's access to markets is even more restricted.

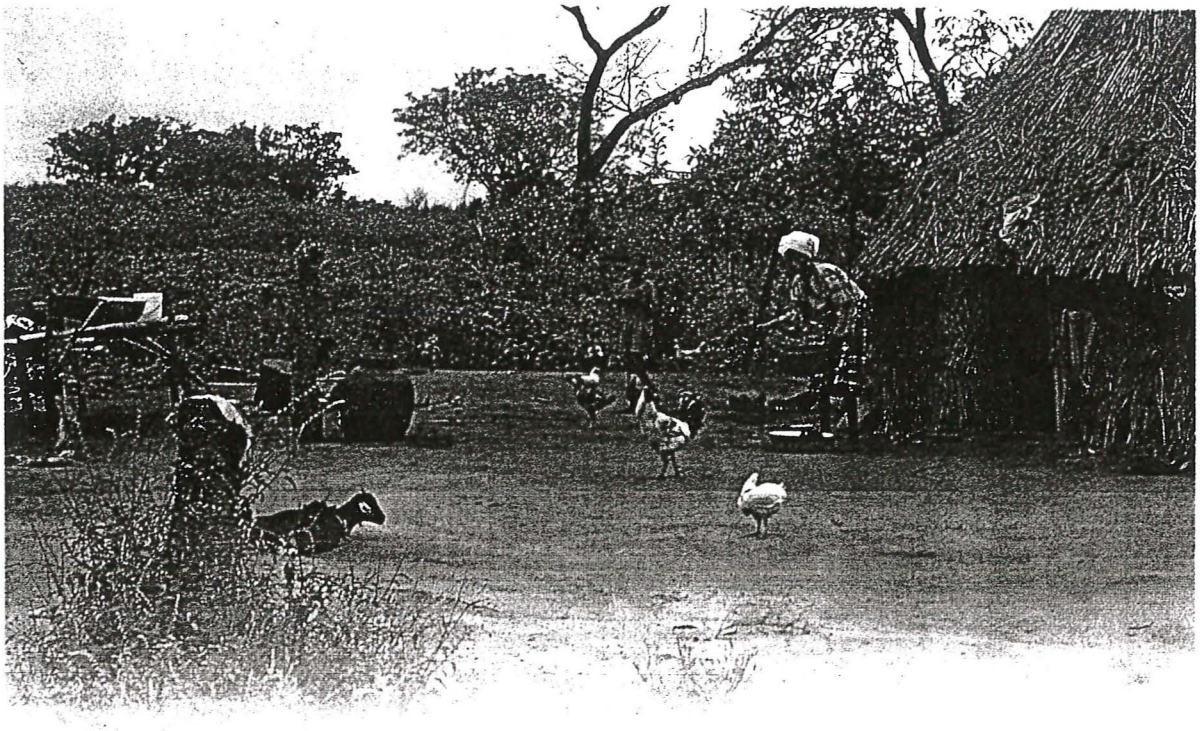


How ILRI and its partners can help reduce poverty

To reduce poverty levels around the globe is a goal that many share. ILRI is just one of a multitude in this complex process, so if it is to be effective, it must focus on contributions in which it can play a valuable role and in which through effective partnerships it can have significant impact. Presently, based on researchers' estimates, ILRI expends approximately half of its resources on mixed crop–livestock systems, 19% on rangelands, 13% on peri-urban and the landless, and 19% on research cutting across all systems. In terms of the poverty reduction pathways, it estimates that some 42% goes towards securing assets, 45% towards enhancing productivity, and 13% towards improving market opportunities. With regard to type of research, some 20% of funds is estimated to be expended on promoting adoption of new technologies, 41% on improvement of tools and strategies for their delivery and adoption, and 39% on new research. From a regional perspective, it is estimated that 72% of funds have been directed at sub-Saharan Africa, 24% at Asia and 4% at other regions. As far as livestock species are concerned, about 82% of ILRI's research is directed at cattle and 18% at other species.

Given recent and continuing changes in the external environment, increases in our understanding of poverty, the need to respond to new partnership and funding opportunities, as well as new developments in science, ILRI envisages various shifts in the current research profile over the next decade, which will influence its agenda:

- The increasing demand for livestock products in developing countries projected to 2020 and beyond and the shifts of human populations to urban centres suggest that more attention should be paid to involving the poor more in all levels of markets. A shift in ILRI's portfolio of research is therefore proposed to increase market-oriented activities.
- Similarly, a shift in types of research is proposed that will significantly increase the proportion of ILRI's activities that promote innovations directly affecting the lives of poor people. ILRI will work with appropriate partners to demonstrate real and lasting impact at all levels, including household, institutional and policy.
- ILRI and its partners need to maintain strength in the mixed crop–livestock systems, in which the majority of poor livestock keepers engage, and in generic research to develop international



Geographical focus of ILRI's research

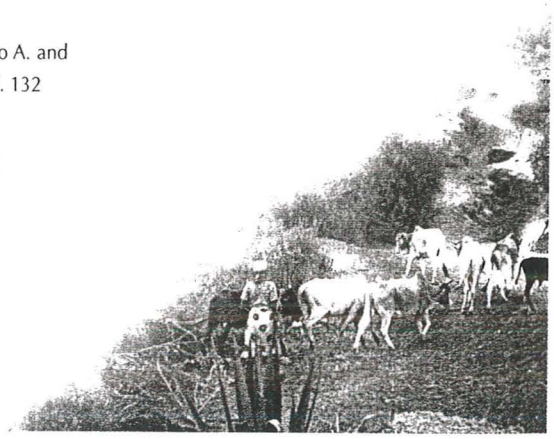
Issues that reduce poverty by using livestock and their products, not geography, drive ILRI's research. Where the weight of poverty bears most heavily will influence ILRI's geographical focus. Few may dispute this simple statement. But two key questions arise: How is the distribution of poverty being measured? And, should we be measuring the distribution of poverty, or rather the distribution of research opportunities to reduce it, or the effects of research products? While the first question has been the subject of recent studies by ILRI, we do not currently hold the answers to the second, but this will become an important component of future ILRI research.

Recently ILRI mapped poverty,[1] by region and production system. South Asia emerged as the most important region of the world, with 57% of the world's poor that are associated with livestock living there (compared with 37% in sub-Saharan Africa). However, with the rate of growth of poverty as an indicator, sub-Saharan Africa emerges as the most important region, with a 3% growth rate, compared with 1% in South Asia.[2] ILRI currently directs 72% of its effort towards sub-Saharan Africa and just 24% at Asia, the majority of which is currently in South East Asia.

But what about other regions of the world, such as Central America, East Asia and Central Asia, where poverty is also important? While ILRI is making its geographical focus on sub-Saharan Africa, South Asia and South East Asia quite clear, the international public goods it is developing with its partners will have wider application, and with appropriate resources and partners, these should be put to the test in other regions of the developing world.

[1] Thornton P.K., Kruska R.L., Henninger N., Kristjanson P.M., Reid R.S., Atieno F., Odero A. and Ndegwa T. 2002. Mapping poverty and livestock in developing countries. ILRI, Nairobi. 132 pp.; also CD-ROM.

[2] World Bank. 2001. World developmemt report 2000/2001: attacking poverty. Oxford University Press, New York. 135 pp.

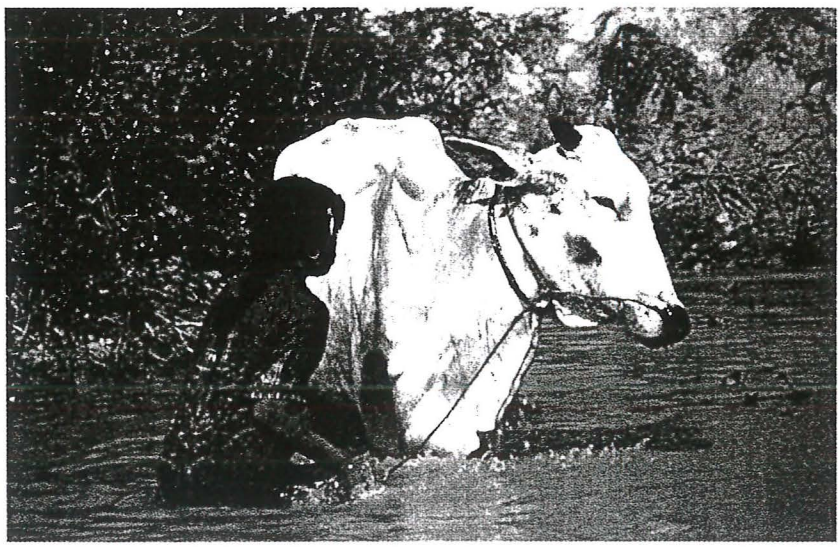


public goods, since this is one of ILRI's collaborative advantages. For the future, a shift to greater work with peri-urban and landless systems is proposed, in view of predicted increases in demand for livestock products. At the same time, given the almost complete dependence on livestock of pastoralist peoples, their tendency to be marginalised, their vulnerability, and the dearth of alternative research institutes working in this sector, efforts will continue on rangeland systems, particularly those in Africa.

- Given sub-Saharan Africa's high, increasing rate of poverty, ILRI proposes to maintain more than two-thirds of its research effort there. Much of ILRI's current research in Asia is in South East Asia. An increasing focus on activities in South Asia is proposed, where there are large numbers of poor livestock keepers (more than a third of all poor livestock keepers are located in South Asia), and where there are potential niches for ILRI's research activities.
- As many of the poor do not keep cattle, research is therefore proposed to cover a wider range of appropriate species.

Livestock species in poverty-focused research

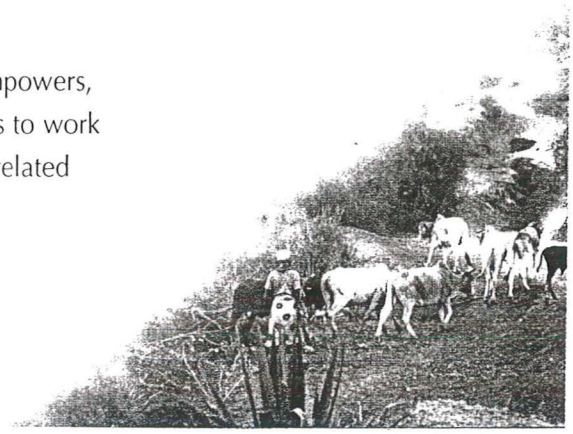
Research on ruminants, in particular cattle, is ILRI's historical strength. Cattle are vitally important to the livelihoods of the poor in many regions of the developing world, and constraints to their feeding, management, health and breeding have been the focus of much effort by ILRI and its partners in the past. However, many other species of livestock are also important to the poor. The importance of different species varies by region and production system. Many of the poor have no livestock at all. Those who own livestock usually keep more than one species, taking advantage of the different, often complementary roles each species can play, as well as spreading their risk. Furthermore, each species serves multiple roles. ILRI currently expends over 80% of its resources at research targeted at cattle and less than 20% at other species. With a greater focus on poverty reduction, this proportion will almost certainly change.

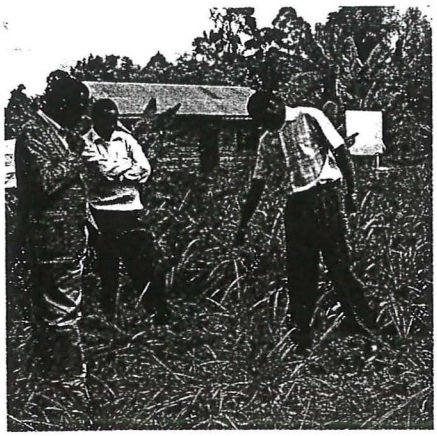


Guiding principles for strategic planning

For ILRI to achieve its overarching goal of reducing poverty via the three major pathways it has identified, it must shift its research portfolio. A set of 'guiding principles' arise from carefully considering external influences on its research agenda:

- Give high priority to research on *securing the assets* of the poor and particularly on enhancing participation of the poor in *markets at all levels* for livestock and livestock products.
- Take advantage of ILRI's capacity to use *new and applied science* to address the problems of developing country agriculture, and increase efforts to improve the *adoption and use* of innovative research products.
- Maintain research focus on reducing poverty in *sub-Saharan Africa* and increase research partnerships aimed towards impact in *South Asia*.
- Maintain research focus targeting *mixed crop–livestock systems*, in which the vast majority of poor livestock keepers are found, and increase research aimed at *landless and peri-urban* systems.
- Increase research emphasis on animal species kept by poor livestock keepers, increasing the emphasis on *sheep, goats, pigs and poultry*.
- Incorporate *gender analysis* in research activities, identifying the needs of *poor women* and addressing their marginalised status in view of the vital role they play in agriculture in the developing world and their effectiveness in channelling benefits to families.
- Strengthen the *capacity* of ILRI and its partners to contribute to the identified research themes. This will extend beyond running courses and training students to *innovative training activities and research partnerships*.
- Increase awareness of both the role and the potential of livestock to reduce poverty and of ILRI's goal, activities and contributions through more effective *communication*, disseminating research results to wider, more diverse audiences.
- Adopt a *facilitative, catalytic and brokering role* that empowers, equips and encourages a wide range of diverse partners to work together with ILRI to reduce poverty through livestock-related research and development.





- Strengthen *participatory approaches* to research activities, listening to, learning from and responding to the needs of clients and others involved.

Strategic research themes

These guiding principles help identify a number of priority problems with demonstrable links to poverty. From them, a set of five 'strategic research' themes emerge.

A strategic research theme is a focused cluster of multidisciplinary research projects and activities that together contribute towards achieving a common problem-oriented objective. All the themes will enable ILRI, in partnership with others, to achieve its overall goal via the three pathways out of poverty.

In selecting its set of strategic research themes as its key areas of focus to the year 2010, ILRI considered the major influences in the external environment, the current research portfolio, its goal of reducing poverty

Capacity building

Partners in national agricultural research and extension systems have consistently stressed the value they place on ILRI's capacity-building services. The strength of these national systems depends on their ability to recruit, develop and retain staff capable of fully exploiting new developments in science and extension. In poorer countries, however, they must contend with many limitations to building capacity. A major disincentive is that scientists are isolated from international developments in their professions and areas of responsibility.

In the arena of livestock-related sciences, ILRI is well placed to provide opportunities:

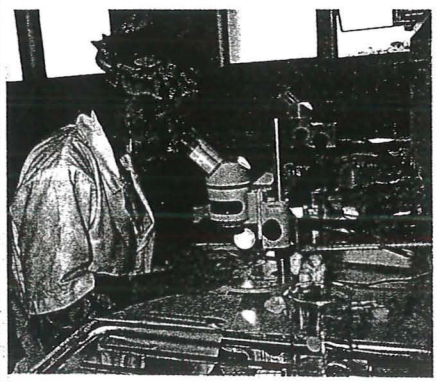
Graduate students do field and bench work with internationally recruited colleagues and mentors.

Developing country scientists work alongside ILRI colleagues in applying cutting-edge science in research for development.

ILRI builds professional connections between scientists in national systems and international research centres.

ILRI produces much-needed information and learning materials that are relevant for tertiary agricultural education institutions in developing countries.

ILRI facilitates international networking that is essential, especially for researchers in small countries.



What is 'strategic research' for ILRI?

For ILRI, as an international agricultural research centre, strategic research is characterised by the following features:

It responds to problems that have local relevance with national, regional and global application. It is primarily geared towards finding principles, processes, methods and technologies that can be applied to other locations and regions. The ultimate product of strategic research is not site specific but an evaluation of the processes, principles and technological elements required for successful adaptation and use in a variety of situations.

It integrates different levels and phases of research. It is rarely limited to one level or phase but requires systemic approaches. It needs to be conducted at all stages in the research and development continuum and at local, national, regional and global levels.

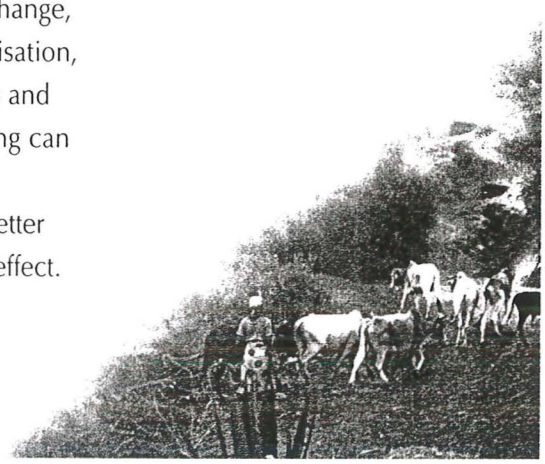
It is collaborative in nature. One participant working alone cannot provide the complex set of research methods, processes and sources of innovation the research requires.

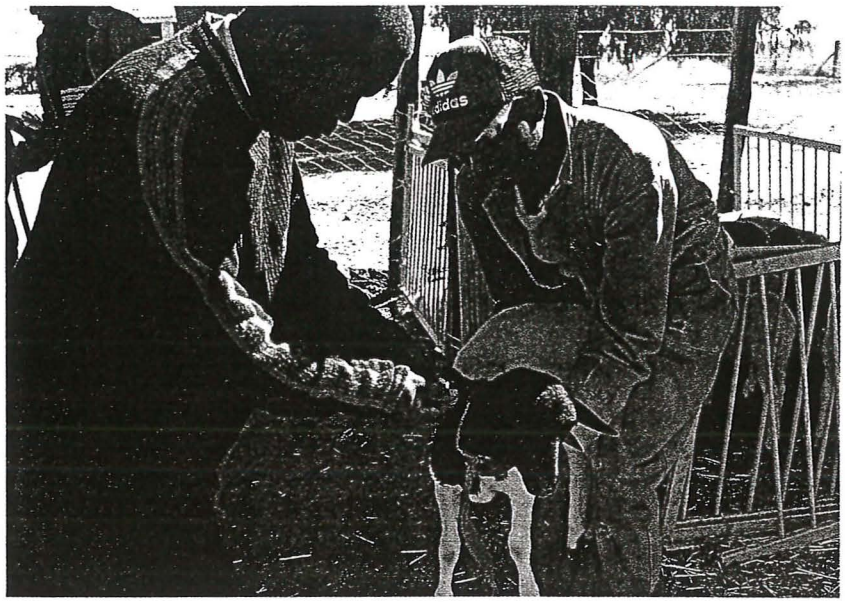
through sustainable development, the needs and priorities of national agricultural research systems, the poverty reduction pathways, and its own guiding principles. It thus identified the following complementary and interrelated strategic research themes.

Theme 1—Supporting policy-making and priority-setting for livestock research and development: current and future roles of livestock in poverty reduction

By what means can the livestock sector affect poverty? What broad changes in the role of livestock, such as globalisation of markets, climate change and urbanisation, affect poverty? Donors and governments realise the value of addressing these issues from both a developing country and a research perspective.

Research will aim to gain further understanding of how livestock can help reduce poverty. Predictive studies will use systems analysis and geographical information systems. Appreciation of what drives change, such as increase in human population, economic growth, urbanisation, HIV/AIDS and climate change, will help assess the evolving role and the dynamics of livestock in reducing poverty. Such understanding can help shape appropriate farming systems for the future. Systems modelling will be an important component within this theme. Better monitoring and evaluation methods will be applied to measure effect.





EXAMPLES OF OUTPUTS

- mapping of poverty and livestock, moving beyond identifying clusters of poor livestock keepers to mapping better opportunities for different types of livestock research
- modelling of households of poor livestock keepers, for better understanding of how livestock contributes to the diverse facets of reducing poverty, and to improve the effect of livestock-related interventions on poverty
- impact assessment of key steps such as the development of vaccines, improved food and feed crops, and better management of trypanosomosis

Theme 2—Enabling access to innovation: adapting and delivering technology and information

Settings where both the biophysical and the social context of the farming systems are highly variable require a decentralised participatory approach in which farmers learn jointly with researchers how to use specific technologies to improve farmer welfare. The direction of future research and development is clear: to experiment with diverse approaches and build a set of contrasting case studies from which to extract broad lessons for developing participatory processes in the livestock production settings of the poor. These process lessons, if successful, will then be disseminated.

An integrated approach towards natural resource management will emphasise 'research for development' within innovation systems. This

theme represents a largely new departure for ILRI. It will require strengthening its social science capacity, developing a wider range of partnerships, emphasising participatory approaches and making greater use of interdisciplinary teams.

The focus on livestock will have three facets: 1) understanding innovation processes, 2) developing and testing participatory processes to improve adoption, and 3) facilitating institutional arrangements for instigating innovation.

Factors hampering women from using newly acquired knowledge, technologies and other innovations will receive special attention. The benefits that can accrue from modern scientific methods will be linked to traditional knowledge bases, and effective ways of building the farmer's capacity to innovate and integrate both knowledge systems will be developed.

Facilitating institutional arrangements for livestock innovation involves creating 'platforms' where the main participants in livestock research and development will regularly come together to develop a shared vision and to clarify their functions, roles, contributions and the interactions among themselves. These platforms will also involve identifying more effective ways to influence policy-makers to ensure that research findings are incorporated into new, improved policies intended to lessen poverty.

EXAMPLES OF OUTPUTS

- widespread dissemination of the 'infection and treatment' method for control of East Coast fever in eastern Africa, involving government agencies, private sector veterinary drug companies, extension services, private animal health services, research institutes

  participatory development of best-bet forage, food and feed crops as a means for their rapid adoption by the poor

  adaptation of the farmer field-school concept to improve livestock systems of the poor, starting with smallholder dairy enterprises

Theme 3—Improving market access: opportunities and threats from globalisation and the Livestock Revolution

Growing livestock markets in the developing world offer a real opportunity for poor livestock keepers to work their way out of poverty. The feasibility for smallholders to get access to these markets will depend on public investments that address such constraints as food safety issues, sanitary trade barriers in international trade and distortions caused by lack of consideration of environmental externalities frequently associated with large-scale industrial livestock production.

Research will identify opportunities for the poor, especially for women and other marginalized peoples, to exploit more effectively market opportunities at all levels. Research will concentrate on policy issues related to improving the marketing of livestock and livestock products. A major focus of this theme will be the rapidly increasing demand for dairy and meat products and the important role that smallholder farmers play in supplying rural and urban markets. ILRI will transfer the principles of smallholder dairy production it has successfully developed in East Africa to other species and to other regions of the developing world. It will also exploit new and emerging markets for non-traditional products such as carbon credits and stewardship or sustainable utilisation of biodiversity.

EXAMPLES OF OUTPUTS

- analysis of implications of WTO negotiations on international and domestic markets for livestock products and on the participation of the poor in these markets

- identification of sanitary trade barriers affecting the participation of the poor in livestock markets
- development of innovations (technical, institutional and policy) to improve the competitiveness of poor livestock producers
- comparative analysis of smallholder dairy systems leading to the identification of policy, technology and institutional interventions that maximise the opportunities for reducing poverty along the dairy value-chain

Theme 4—Securing assets: better livelihoods through the application of biotechnology

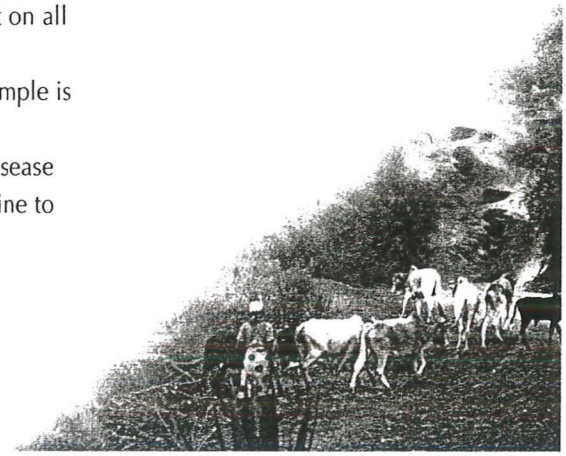
ILRI is committed to applying science to develop technologies that will allow poor livestock keepers to secure their assets–for example, developing vaccines and mapping genetic traits. Applying these technologies reduces the high risk that these livestock keepers run of losing their assets or not realizing their full value. The institute sees a vitally important role for itself in using biotechnology–a cutting-edge science–to identify solutions that will have impact on reducing poverty.

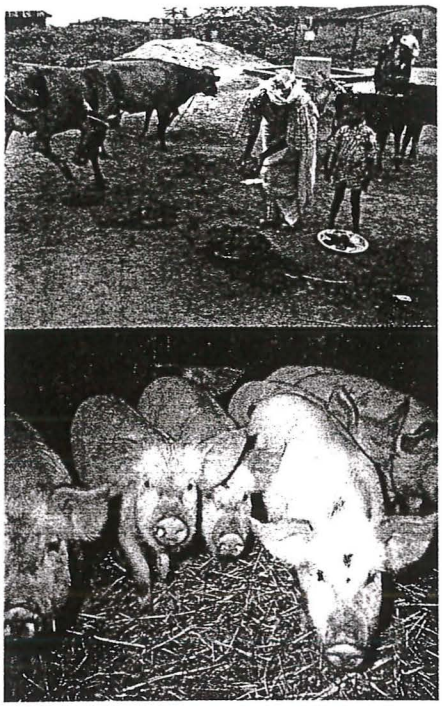
Developing countries face a substantial challenge as they attempt to participate in the dynamic growth in biotechnology. They have difficulty in influencing the agenda in a field strongly driven by the private sector and developed countries. Demands are for training and collaborative research to address problems specific to developing countries. Given their nature, these problems will be addressed only by international or

Biotechnology–opportunities to secure the assets of poor farmers

Biotechnology offers a variety of options for improving animal agriculture of the poor. Genes may be used as markers in disease diagnosis and epidemiology, biodiversity studies and genetic selection programmes, or as key determinants of biological processes that can be modified by vaccines, drugs or other interventions.

The products of biotechnology research can have long-lasting impact on all three of the poverty reduction pathways. ILRI will focus on using biotechnology to secure the livestock assets of the poor. A prime example is to use genetic markers to identify and conserve indigenous livestock genetic resources that have adapted to tropical environmental and disease conditions over the millennia. Another example is to develop a vaccine to prevent African swine fever.





regional public research. Some research issues that ILRI and partners will tackle using biotechnology will likely not even appear on the agendas of most research institutes in the North. ILRI therefore has a responsibility to ensure that these issues are considered for public investment.

EXAMPLES OF OUTPUTS

- capacity building for partners in national agricultural research systems in the field of livestock-related biosafety
- development of improved food and feed crops, initially cowpeas, millets and sorghum, for mixed livestock–crop systems
- pen-side diagnostics that can help farmers control tick-borne diseases

Theme 5—Sustaining lands and livelihoods: improved human and environmental health

Governments, development agencies and NGOs are increasingly realising that to address the needs of the rural poor, more holistic approaches are needed that encompass agriculture, nutrition and health. Livestock frequently provide an important entry point to

Livestock and human health

Poor health, characterised by harmful infectious and respiratory diseases, nutritional deficiencies, and maternal and peri-natal conditions, is a key aspect of poverty. The determinants of these conditions are largely rooted in the agro-ecosystems that sustain the population. Better agricultural practices can improve individual and community health. Livestock contribute to improved health through

- providing meat and milk, which improve nutrition and have some mitigating effect on HIV/AIDS and related opportunistic diseases
- selling animal products, which makes more affordable the health care, education and housing that are conducive to better health
- supplying manure, which increases soil fertility and thereby food security

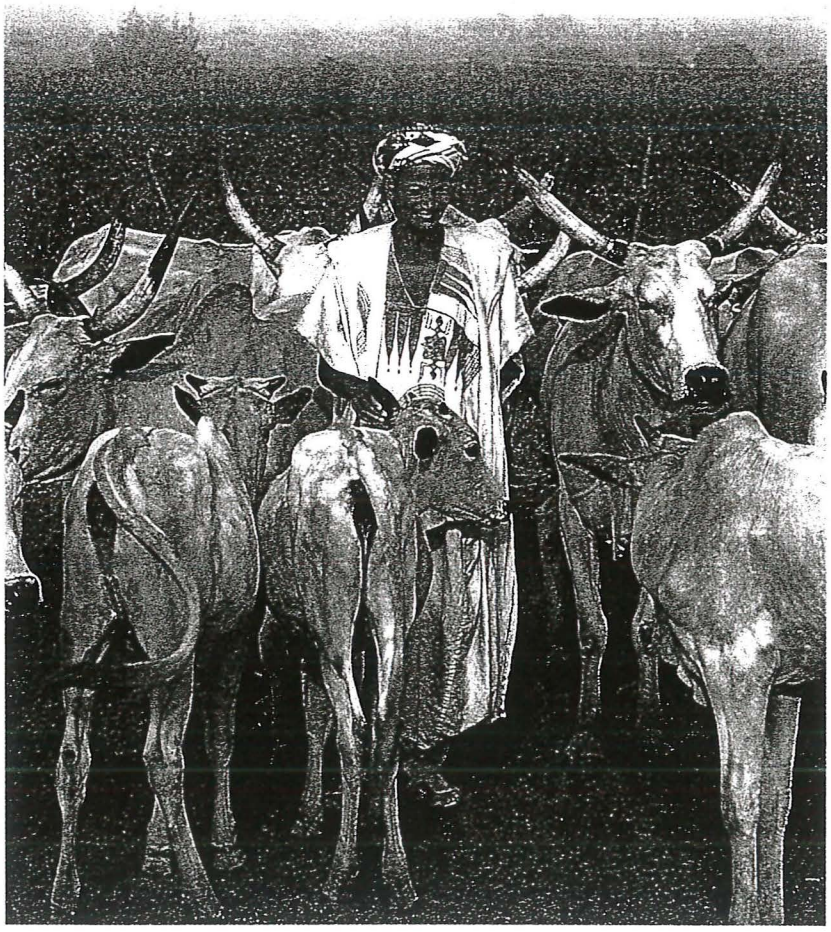
When mismanaged, however, livestock expose people to health risks such as zoonotic diseases including tuberculosis, brucellosis and sleeping sickness; water contaminated by manure and urine; poor indoor air quality, caused by burning manure.

An investment in health is an investment in economic growth, including expanded agricultural production. Poor health holds back agricultural production because of enfeebled or lost labour–now particularly affected by HIV/AIDS–that limits agricultural activity, and because cash is diverted for health care, again, often for care of HIV/AIDS sufferers.

enhanced stewardship of these systems. The broad need is to integrate environmental and human health concerns into livestock development initiatives.

Livestock can serve as an important entry point for addressing environmental as well as human health issues. This theme will follow an integrated approach to natural resource management–fundamentally about the need to balance individuals' and society's competing interests in multiple uses for any natural resource. It is strongly concerned with the way people use natural resources to support livelihoods, and institutional and ecological requirements for long-term sustainability.

This research theme will also consider both positive and negative effects of livestock and their products on the health of livestock keepers, the wider community in which livestock keepers live and consumers of animal food products. Considerations will include ecological determinants of health and human nutrition, food safety issues and the risks posed by zoonoses.



EXAMPLES OF OUTPUTS

- identification of entry points for reducing poverty in crop–livestock systems
- assessment of the importance of bovine tuberculosis among poor livestock owners and identification of methods to address it
- valuation of environmental services (biodiversity conservation, water catchment, CO_2 fixation) as a basis for reducing rural poverty in pastoralist regions
- innovative holistic approaches to primary health care that address human and animal health jointly in smallholder mixed systems

Linking the strategic research themes

Some of these five research themes introduce novel directions for the institute; others involve a change in focus of current work. For example:

- The effective adoption of the products of livestock research is largely a new area that ILRI has not explicitly addressed in the past.
- Improving livelihood opportunities for the poor through greater access to market opportunities builds on the existing, successful work ILRI and its partners have done on research on smallholder dairy policy. New work will expand its geographical, species and product focus.
- Improving livelihoods of the poor by using biotechnology to develop products and tools that help to secure assets builds on ILRI's existing collaborative advantage in the biosciences, but it changes the emphasis from enhancing productivity to promoting the security of assets of the poor.

The five themes are areas on which ILRI will focus to ensure it has impact on poverty reduction. They represent focus, not scale, of operation.

Implications of the strategic research themes

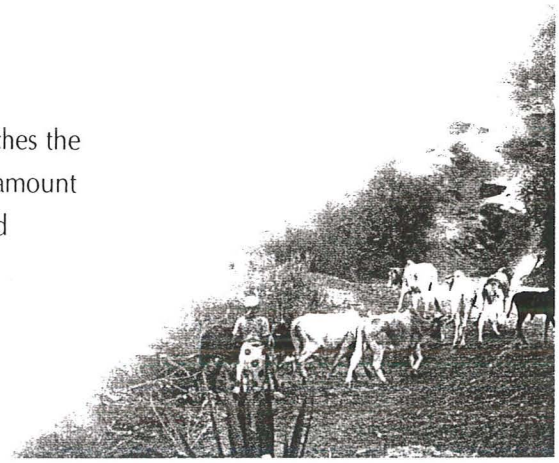
To adopt these strategic research themes, ILRI will need to integrate research both within a theme and between themes, and it must integrate and communicate more closely with partners and the wider global community. The direction proposed is not a strategy for 'business as usual' but rather a formula to develop 'the ILRI the world wants'.

ILRI will continue to have its administrative headquarters in Nairobi and its principal research facilities in Kenya and Ethiopia. Currently it also has research activities in West Africa, South Asia, South East Asia and Latin America. The global research programme will continue, implemented in different regions of the world for the benefit of the developing world. According to the issues involved, scientists and resources located in these different regions will contribute to the five research themes.

Organising and managing an interdisciplinary, multipartner, multilocational and multicultural institution with a global mandate presents many challenges. ILRI sees itself as a medium-size institute with a large mandate. It must put mechanisms in place that promote institutional flexibility, enabling it and its partners to respond to new opportunities. Above all, scientific excellence linked to the goal of reducing poverty must be at the heart of the institute and must drive its management policies. The following principles will guide implementing the revised strategy:

- Promote high-quality science, with outputs from research that have a demonstrable impact on reducing poverty.
- Build upon the expertise and strengths that ILRI has developed in the past, incorporating a capacity to respond flexibly to new challenges and opportunities.
- Recruit quality staff that will collaborate and be integrated across disciplines, projects and research themes.
- Build strong partnerships with institutions in developing and developed countries.
- Carry out research in a cost-effective manner.

ILRI will seek to establish a balance in its research staff that matches the need for flexibility with stability, maintains a critically sufficient amount of core disciplinary competencies, and combines enthusiasm and willingness to take risks with solid experience and knowledge.

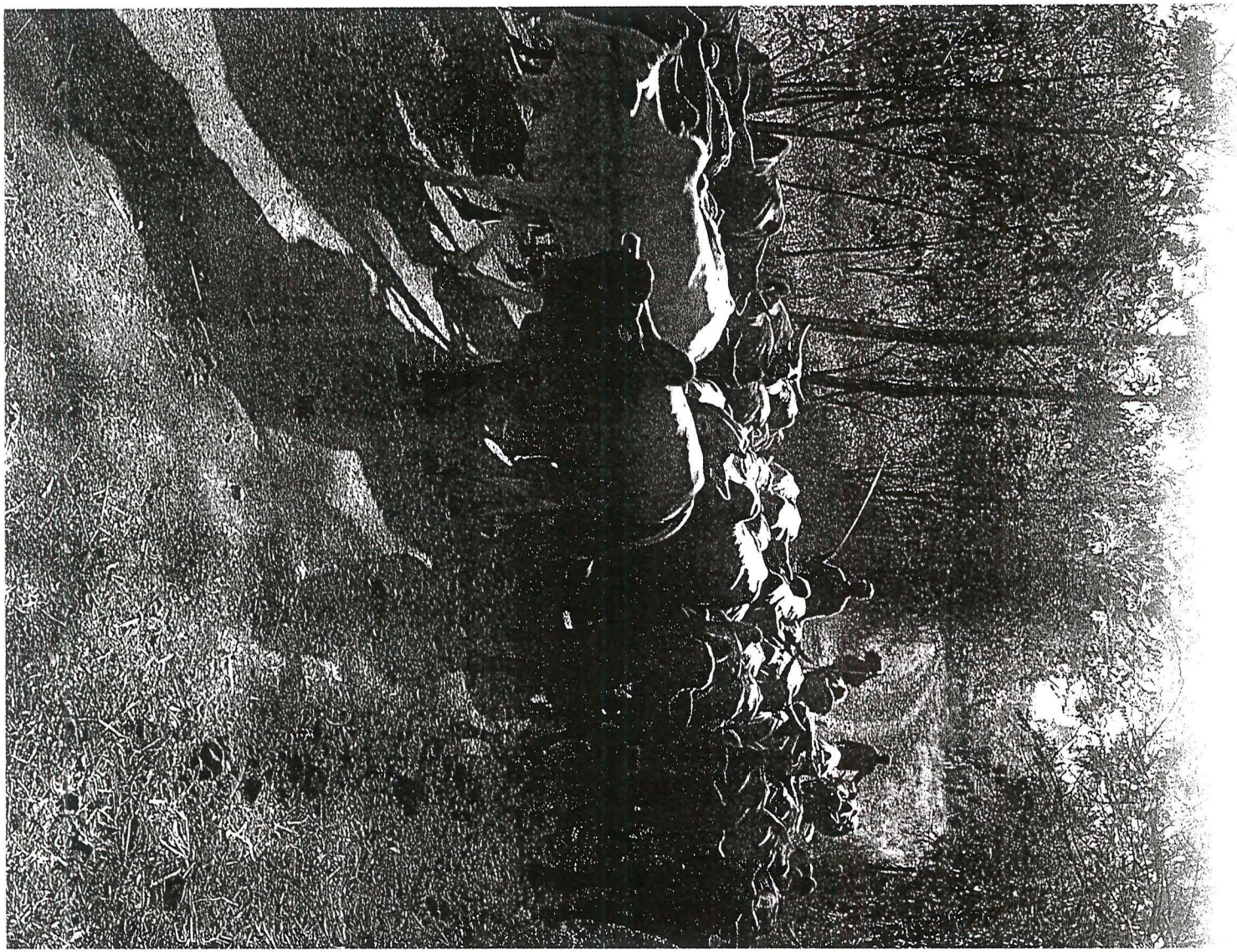


ILRI's path ahead

This strategy to 2010 reflects change. It focuses ILRI, ensuring that the work has impact on reducing poverty. It will fundamentally affect ILRI's research agenda. Its five themes are problem driven, multidisciplinary and output oriented. The change also implies increased demands on ILRI. Internal systems, structures, procedures, human resources and regional strategies will have to be reviewed and reoriented to implement this new strategy effectively.

ILRI recognises that the agenda is large. It must, therefore, work with many and diverse partners to accomplish its goal. Through participatory research with poor farmers, ILRI will learn from their traditional skills and knowledge and incorporate this information into its recommended technologies, innovations and policies.

With this strategy, ILRI positions itself to use the best science for livestock research to ensure that poor people have a pathway out of poverty.



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About ILRI

The International Livestock Research Institute (ILRI) (www.ilri.org) has a mandate to enhance the well-being of present and future generations in developing countries through research to improve sustainable livestock production. It works in partnerships and alliances with other organisations, national and international, in the fields of livestock research, training and information exchange. ILRI was formed in 1994. Its headquarters are in Nairobi, Kenya, with offices in seven more countries around the world.

ILRI is one of 16 Future Harvest centres (www.futureharvest.org), which conduct food and environmental research to help alleviate poverty and increase food security while protecting the natural resource base. The centres are funded through countries, private foundations, regional and international organisations, and are supported by the Consultative Group on International Agricultural Research (CGIAR).

The CGIAR (www.cgiar.org) is an informal association of public- and private-sector members. The CGIAR's mission is to contribute to food security and poverty eradication in developing countries through research, partnership, capacity building and policy support. It promotes sustainable agricultural development based on the environmentally sound management of natural resources. The CGIAR is co-sponsored by the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the United Nations Development Programme (UNDP) and the World Bank.

Photographie des participants à la Conférence de Mombasa, Kenya du 15-18 octobre 2002